HOARD'S DAIRYMAN

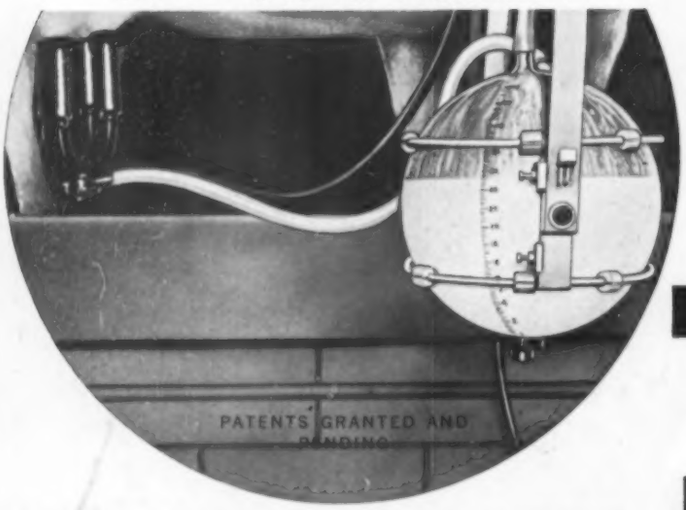
APRIL 10, 1961

THE NATIONAL DAIRY FARM MAGAZINE

from UDDER to MILK TANK...

CHORE-BOY is the ONLY Pipeline Milking System with all of the features for best and fastest milking and production of highest quality milk at lowest cost

SEE what every cow produces at every milking with a *Roll-O-Measure*



LOW VACUUM–LOW LEVEL MILKING

A pipeline milking system equipped with a Chore-Boy Roll-O-Measure shows exactly how much milk every cow produces at every milking. It enables you to spot your poorest producers and keep a close check on all your cows. Bloody milk and milk from fresh cows can be kept out of the milkline. Even more important is the Roll-O-Measure's aid to better and faster milking by: (1) Separating functions of milking and lifting; (2) A vacuum reserve close to udder maintains a steady vacuum; (3) Low-level flow of milk is easy, short and quick; (4) Operator can see when milk flow stops and to remove teat cups. These advantages combined with Chore-Boy's famous low-vacuum and master-pulsating system gives best milking that can be obtained. It helps eliminate a major cause of mastitis. Therefore Roll-O-Measure enables you to weed out your poorest producers and milk your good cows better. This is certain to result in greater production per cow. The Roll-O-Measure is washed in place with the rest of the system.

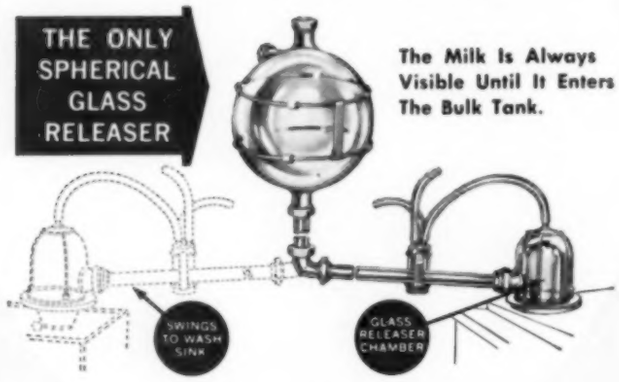
COMPLETE VISIBILITY OF MILK FLOW

Chore-Boy is the only pipeline milking system providing cleaning-in-place with complete visibility of milk flow from teat cups to bulk tank or cans. You can see if your system is clean. Milk flows from the glass line into the glass sphere of the Roll-O-Clean Releaser. Then to the glass dumping chamber which releases the milk into the tank. Wash water follows the same course. During the washing cycle, air injected into the vacuum line creates high velocity slugs of water which provide a vigorous washing action. The fast-moving water then enters the sphere, rolling over and over, cleaning it thoroughly without dismantling. The vacuum washing action continues on to the glass dumping chamber, cleaning it in-place. Chore-Boy's air-injection washing action requires only ⅓ the hot water and detergents needed for most other systems. One motor and one vacuum pump is the sole source of motivation. This saves money. With a Chore-Boy System you'll produce highest quality milk at the lowest cost.

SEE that your entire milking system is clean with a *Roll-O-Clean* Releaser

THE ONLY SPHERICAL GLASS RELEASER

The Milk Is Always Visible Until It Enters The Bulk Tank.



PATENTS GRANTED AND PENDING

BE SURE TO LOOK INTO THESE NEW CHORE-BOY DEVELOPMENTS — SEE YOUR DEALER OR WRITE CHORE-BOY HEADQUARTERS

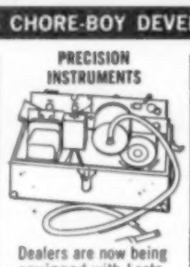
FOR PROTECTION AND CONTROLS

Stainless steel cabinet houses sealed vacuum controls, vacuum gauge, differential vacuum regulator and self-draining moisture trap.

AUTOMATIC WASHER

Just switch on the current and this compact automatic washer does entire washing job — rinsing, the long wash, and sanitizing without a minute of your time.

PRECISION INSTRUMENTS

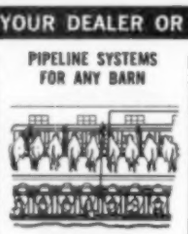


Dealers are now being equipped with Lactographs for testing the efficiency of pipeline milking systems. Pulsation cycles are recorded on a paper graph.

MILK 50 TO 60 COWS PER MAN—PER HOUR

The Chore-Boy Herringbone systems in use on thousands of farms prove they can milk 2 to 3 times faster and better than pail milkers or tandem parlors.

PIPELINE SYSTEMS FOR ANY BARN



Chore-Boy can provide all types of milking systems including short pipelines, around-the-barn stanchion, side-opening or walk-thru stalls or pail milkers.

SAVE MONEY WITH BULK FEED

Chore-Boy's new bulk feed bin has a moving bottom to prevent bridging of feed. You save money and time with bulk feed storage and handling.

CHORE-BOY LACTORIUMS

The complete plant including a Herringbone Pipeline Milking System will be delivered to your farm. Saves time and trouble in building your own parlor. Saves money.

CHORE-BOY GUARANTEE AND SERVICE POLICY

The Chore-Boy Gold Star Service Policy is the strongest and broadest guarantee covering any milking system. It covers all phases of installation, instruction and use.

CHORE-BOY LOW-VACUUM MILKING SYSTEMS

CHORE-BOY PURCHASE PLAN

With our new Purchase Plan you can be using your Chore-Boy Milking Equipment while it pays for itself. And you have 5 full years to pay. Send today for information.

For more information, write **CHORE-BOY MANUFACTURING CO.**, Dept. 11, Cambridge City, Indiana

GOODYEAR "EXTRA HAND" SERVICE AT WORK:

"Getting back on the job in an hour saved me $250"

reports Robert McNinch, Mac-Beth Farm, Belmont, N.Y.

WITHIN MINUTES OF A TROUBLE-CALL from Bob McNinch, M. & W. Tire Co. "rep" Alvin Jordan reached Mac-Beth Farm. He quickly installed a free "loaner" to replace a tractor tire that had been damaged beyond repair. Just one hour after the accident, the tractor was back planting oats again. According to McNinch, this speedy service saved $250—the wages of his extra field hands who would have been idled the rest of the day without the tractor.

THE NEXT MORNING AT 7 A.M. Jordan returned to replace the "loaner" with the new Goodyear tire McNinch needed. It was expertly installed—inflated—liquid-weighted, in time for a full day in the field. That's all part of the "Extra Hand" service that has helped keep McNinch a Goodyear tractor tire user for the past 18 years. Another big reason he's a Goodyear fan: Goodyear famed Sure-Grip quality gives him 1,000 hours of peak performance a year—year after year.

IT'S EASY TO SEE WHY farmers the country over are loyal to Goodyear. They know that Sure-Grip Tractor Tires feature super-tough rubbers teamed with exclusive Triple-Tempered cord for bonus mileage. And every mile of it, those ruler-straight, gear-like lugs deliver exceptional traction.

GOODYEAR "EXTRA HAND" FARM TIRE SERVICE

1 Check, change and repair any type tire.
2 Furnish "loaners" while your tires are being repaired or retreaded.
3 Liquid-weight your tractor tires for maximum traction.
4 Minimize down time through expert help on tire maintenance.
5 Take care of your battery needs.

To save money on tractor tires that are the biggest dollar's worth today—or to save time in emergencies through "Extra Hand" service—call your Goodyear dealer!

Goodyear, Farm Tire Department, Akron 16, Ohio.

Sure-Grip—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

Lots of good things come from

GOODYEAR

MORE FARMERS PREFER GOODYEAR TRACTOR TIRES THAN ANY OTHER KIND

Choose either the popular 3-T Sure-Grip or extra-quality Traction Sure-Grip tires, both out-in-front performers

Questions I'm asked about

Dr. G. C. Wallis, recognized authority in the field of Vitamin D₃ nutrition for livestock

Q: Will two to five pounds of good sun-cured hay provide enough vitamin D for my dairy cows?

A: No. Sun-cured hay varies widely and unpredictably in vitamin D content—80 units to 1,250 units per pound have been reported for sun-cured alfalfa hay. Two to five pounds of lower potency hay would provide about 200 to 500 units per cow per day which is insignificant. Even though the hay happened to be high in vitamin D, there would be only a modest contribution made toward the suggested optimum intake of 6,000 to 8,000 units per pound of dairy ration.

Q: How can I check to make sure my dairy cows are receiving enough vitamin D?

A: Good safeguards can be taken but an absolute check is probably not possible. Optimum vitamin D levels for top performance and longevity have not been clearly established but work is in progress. Mild deficiencies are often difficult or impossible to detect but they can be costly. Available information suggests the use of 6,000 to 8,000 units of vitamin D per pound of complete grain ration. Confidence in your feed manufacturer and the good performance of his well-formulated rations would be important for users of commercial feeds.

Q: Is there any danger of my feeds having too much vitamin D?

A: Our recommendations for the vitamin D fortification of feeds are well within the generally recognized safe limits of vitamin D intake for the different species of animals. With careful methods and efficient modern mixing equipment feed manufacturers are able to achieve good distribution of micro-ingredients. The chance of overdosage is remote.

Q: How much vitamin D do baby pigs and growing-finishing pigs need?

A: Early weaning, fast growth, confinement raising, multiple farrowing and other changes have greatly increased nutritional stress factors since the vitamin D requirements of pigs have been carefully studied. Based largely on amounts that have given good results in experimental and practical swine raising programs, a number of Experiment Stations are suggesting about 500 units of vitamin D per pound of milk replacer and starter with somewhat smaller amounts as pigs approach market weight.

Q: Do sheep get enough vitamin D from natural sources?

A: Not always. For instance, in recent English studies lambs from ewes given supplemental vitamin D averaged 6 pounds heavier at weaning in one flock and 9 pounds heavier in another than lambs from ewes given no vitamin D. Fleeces from experimental animals were more than ¼ pound heavier, graded higher, and brought a premium price.

D. C. Wallis

For more complete answers to any of these questions write to Dr. G. C. Wallis, Director of Nutrition, Agricultural Department, Standard Brands Incorporated, 625 Madison Avenue, New York 22, N. Y.

Fleischmann's Fidy Irradiated Dry Yeast
rich in vitamin D for four-footed animals

another fine product of
Standard Brands Incorporated

HOARD'S DAIRYMAN

The National Dairy Farm Magazine

Publishers
W. D. Hoard & Sons Co.
Fort Atkinson, Wis.

W. D. Hoard

Founded by
W. D. Hoard, 1885
Fort Atkinson, Wis.

W. D. HOARD, JR.
General Manager

W. D. KNOX
Editor

Associate Editor, E. C. MEYER
Associate Editor, R. E. DAVENPORT
Advertising Manager, T. E. BJORK
Veterinary Editor, DR. E. A. WOELFFER

In this issue . . .

Volume 106, No. 7
April 10, 1961

Title page

All soil needs organic matter . . . . . *R. L. Cook* 349

Features

More power for your money . . . . . *L. Gerard* 351
Make fertilizer pay your feed bill . . . *W. H. Longstaff* 352
Few hands from field to cow . . . . . *R. Bowen* 353
Here's the story of the judging contest cows 354
Ideas for home sewing center . . . . . *A. Joselyn* 390
Teamwork moves a bigger load . . . . . *N. Reeder* 394

Short articles

Liquid vs. dry fertilizer . . *A. L. Lang and C. K. Martin* 357
Why soil tests vary . . . . . *J. L. Keogh* 359
Lime boosts corn yields . . . . . *R. L. Lee* 364
Rootworms keep chewing . . . . . *J. W. Apple* 365
Don't expect miracles! . . . . *E. A. Woelffer, D.V.M.* 366
Forages need balanced diet . . . . . *J. N. Falloon* 368
Latar orchard grass looks promising . . . *E. O. Nurmi* 370
Build a door opener . . . . . *D. W. Bates* 373
Establish legumes with herbicides . . . . *E. J. Peters* 378
Does your soil need water-soluble phosphorus? *A. J. Ohlrogge* 381
Protect your soil by stubble mulching . . . *F. L. Duley* 384
Is your corn planter ready to go? . . . . *W. Bowers* 386
Crop rotation vs. continuous corn . . . . *S. A. Barber* 388
How I manage early pasture . . . . . *E. Brown* 398

Regular departments

Washington Dairygrams . . 341
Opinions and Brickbats . . 342
Farm Flashes 350
Editorials 360
Questions from Our Readers 361
Feeding 374
Artificial Breeding . . . 382
Dairy Farm Home . . 390
Patterns 391
Poultry 392
Handy Hints 393
Young Dairymen . . . 394
Veterinary 402

What's this outdoors business? After being confined in pens since birth, these heifers at Lane Guernsey Farm, Camden, Ind., have their first opportunity to explore the great outdoors. Hesitant for the moment, one will make the big leap, then all will be off with tails in the air to test their new-found freedom . . . until they learn by experience what fences are for.

R. W. Lane and his veterinarian father operate 300 acres. Their 45-cow herd is on AR test with records last year averaging 9,700 pounds milk, 499 pounds fat. Pride of the farm is McDonald Farms Rival Ace, that is owned jointly with McDonald Farms, Cortland, N.Y. This bull was twice an All-American, having won his class and junior champion honors at the National Dairy Cattle Congress. He is now 3 years old.

This is a J. C. Allen and Son photo.

Hoard's Dairyman, copyright 1961 by W. D. Hoard & Sons Company. All rights reserved. Title registered U. S. Patent office.

Published the 10th and 25th of each month by W. D. Hoard & Sons Company, 28 Milwaukee Avenue, West, Fort Atkinson, Wisconsin. Entered as second-class matter July 25, 1902, at the post office at Fort Atkinson, Wisconsin, under the act of March 3, 1879.

Subscription Prices, United States and possessions, 3 years, $2.00. One year, $1.00. In Canada, 1 year, $2.00; three years, $5.00. In all other countries including Latin America, 1 year, $3.00.

The receipt of Hoard's Dairyman is notification that money on subscription has been received. The label on paper will show date to which subscription is paid. Changes of address should reach us three weeks in advance. Include old address.

Unwholesome, immoral and questionable medical advertising is excluded. A sincere effort is made to carry advertising of only reliable people. We will always take it as a favor to be notified promptly whenever any advertiser's dealings with the subscribers are not in good faith or evidence a lack of business honor. Advertisers recognize the readers of Hoard's Dairyman as an up-to-date class of farmers, and we hold our columns for the patronage of only those with whom our readers can deal with profit and satisfaction.

Hoard's Dairyman is published on the 10th and 25th of each month. Advertising copy for the 10th of the month issue must be received before the 10th of the preceding month. For the 25th of the month issue, copy must be received before the 25th of the preceding month.

Washington Dairygrams

DAIRY PRICES BOOSTED BY NEW SUPPORT LEVEL ANNOUNCEMENT. THROUGH MARCH 30, 1962, MANUFACTURING MILK WILL BE SUPPORTED AT $3.40 INSTEAD OF $3.22. MEANS THAT MILK OF NATIONAL AVERAGE TEST (3.85) SHOULD AVERAGE $3.40 FOR COMING YEAR.

SQUEEZE PLAY BY SENATOR AIKEN (VERMONT) BROUGHT DAIRY SUPPORT ANNOUNCEMENT. INVOLVED FEED GRAINS BILL. FEED GRAIN STRATEGY WAS TO USE DAIRY SUPPORTS AS LEVERAGE TO PASS GRAINS BILL. BUT AIKEN ADDED DAIRY AMENDMENT WHICH COULD WIN AND AT SAME TIME THREATEN PASSAGE OF GRAINS BILL. SENATE LEADERS REACTED IMMEDIATELY, MET WITH SECRETARY FREEMAN AND URGED PROMPT ANNOUNCEMENT OF DAIRY SUPPORTS.

LONG-RANGE FARM PROGRAM OUTLINED BY PRESIDENT KENNEDY. WANTS FARMER-ELECTED COMMODITY COMMITTEES TO DEVELOP PROGRAMS WITH U.S.D.A., THEN SUBMIT TO CONGRESS. UNLESS TURNED DOWN BY HOUSE OR SENATE WITHIN 60 DAYS, PROGRAMS WOULD GO INTO EFFECT.

PRICE INCREASE DIFFICULT TO PREDICT BUT SHOULD BE ABOUT 14 CENTS PER HUNDRED OVER THE YEAR SINCE AVERAGE PRICE FOR MANUFACTURING MILK IN 1960 WAS $3.26.

BIG ISSUE ON FEED GRAINS BILL WAS WHETHER SECRETARY OF AGRICULTURE COULD SELL SURPLUS STOCKS INTO MARKET AT LOWER LEVELS TO ENCOURAGE COMPLIANCE WITH ACREAGE CUTBACK. HOUSE SAID YES AND SENATE NO BUT CONFEREES GAVE BACKING TO ADMINISTRATION.

SPRING PIG CROP IS EXPECTED TO BE UP ABOUT 8 PER CENT THIS YEAR OVER 1960 FARROWINGS.

PRESIDENT PROPOSES TAX INCREASES FOR HIGHWAY PROGRAM. WILL MEAN HIGHER TRUCKING COSTS FOR MILK.

★ ★ ★

In YOUR next issue!

CUT EARLY FOR MORE MILK . . . Written by Dr. Tom Reid, whose dramatic findings were reported in 1955, this article, along with a map on the cover, is the first attempt to map the nation as a guide to profitable first cutting of the forage crop. Don't miss it!

OFFICIAL PLACINGS AND REASONS . . . Here is what you have been waiting for . . . the judges' official placings and reasons in our Hoard's Dairyman Cow Judging Contest. Winners will be announced May 10.

DON'T OVERLOOK MOW DRYING . . . It not only lets you get hay out of the field earlier, but saves many leaves which might be lost in field curing. Results in more protein, better color.

AND MANY MORE . . .

Easy TO ORDER OR RENEW!

HOARD'S DAIRYMAN
Fort Atkinson, Wisconsin

☐ New
☐ Renewal

I enclose $_____ Please send me Hoard's Dairyman for _____years.

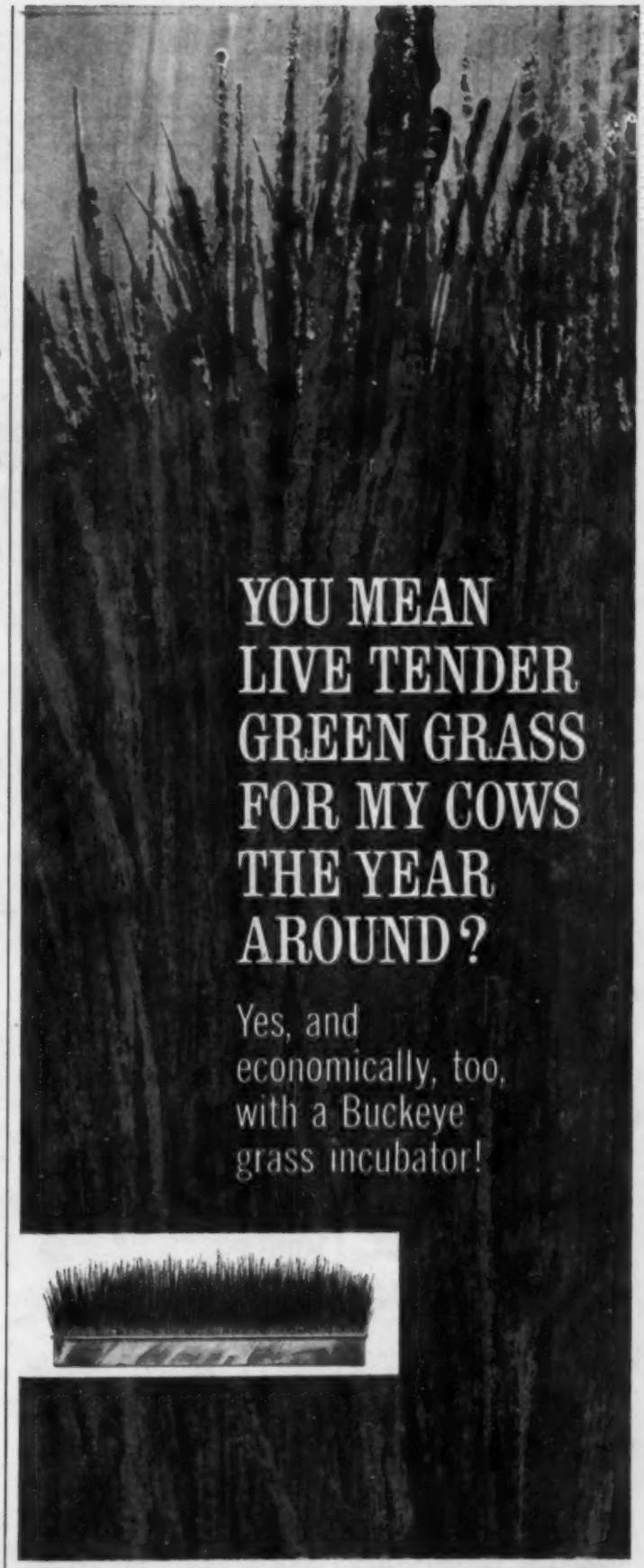
Name_____R. F. D._____

P. O._____State_____

SPECIALS

3 years $2.00 - 5 years $3.00 (Reg. price 1 year $1.00)

(CANADIAN: 1 Year—$2.00 — FOREIGN: 1 Year—$3.00)



GRASS INCUBATOR DIVISION

THE BUCKEYE INCUBATOR CO. • Springfield, Ohio, U.S.A.

PLEASE SEND INFORMATION on GROWING GRASS in an INCUBATOR and HOW OTHERS ARE PROFITING

Name_____

Address_____

City_____Zone_____State_____

Opinions, Brickbats, Bouquets

These columns are open to the readers of Hoard's Dairyman for the expression of their opinion on any subject, whether radical or conservative, destructive or constructive, wise or foolish, critical or commendatory. Hoard's Dairyman assumes no responsibility for opinions expressed.

Would like 40-hour week

I know the article on farm help in the January 10 issue was not meant as humorous but that is the way it hit us.

There really is nothing quite like a pat on the back from the boss. Only, in our case, it is usually after she has had her tail in the gutter all night and we have a clean shirt on.

We have a small operation of 80 acres and 40 head of stock. Actually, some things you suggest to keep a worker's family happy we'd be happy to have ourselves.

We have heard rumors that President Kennedy would like to give the steel workers a 30-hour week with 40-hour pay. Well, I think most small farmers would agree, we'd be most happy to have only a 40-hour week with 30-hour pay (at steel worker's wages).

When we do hire someone I always have a suspicion they are earning more than we are. Could anyone suggest a good profit-sharing plan for farm owners?

We tried writing down a list of jobs once, — 'til it got so long it scared us. Now we do what we can and plan only far enough ahead to make sure things run smoothly. The joy of checking off a job well done diminishes somewhat when you have to turn around and add it to the other end of the list for things to be done tomorrow.

Don't mind us cranks. We just need a vacation. But we're lousy bosses so I guess we'll have to do without. No work, no pay.

MRS. ALBERT GREEN
Pennsylvania

Why fat tests differ

Would certainly appreciate receiving six copies of the article in the January 10 issue, "Why butterfat tests differ," by Fred Stein.

This is an article that can be understood by producers and milk plant operators, and is fair to each.

Montana THOMAS A. McMASTER
Chief, dairy division

"Weeding-out" process

Regarding your editorial, it isn't a question of "Can the co-ops meet the test?" — it's one of "Are they going to be co-ops?"

Co-op managers seem to be changing the internal structure of co-ops. There is a tendency to limit membership to bigger farmers, to enter contract integration with more control over the farmer-members' actual farming processes. A weeding-out process is going on, not a building up of more members.

When the egg co-op, to which I belong, imposed a $1-a-stop collection fee it almost automatically eliminated all the smaller members. The producer of one or two cases of eggs a week couldn't take that kind of cut in price on top of a previous sliding pay schedule under which the more cases of eggs he sent in the higher was the premium he received.

There is plenty of evidence that the older co-ops ignore the interests of their farmer-members and build up a static management with the same officeholders being re-elected and re-elected by the same hand-picked nominating committees. The yearly membership meetings are a farce, a kind of get-together of the alumni. And in many co-ops that alumni is decreasing, becoming more and more a group of "big business" farmers and, by various methods, excluding the smaller farmer.

Are co-ops and farmer bargaining associations to become the exclusive "clubs" of the chosen few "big business" farmers and landholders while the smaller family farmer reverts into the hired labor group, under integration by big agribusinesses and employed by industry? Is his only means of organization to be the labor union?

Ohio NORMAN WILLIAMS

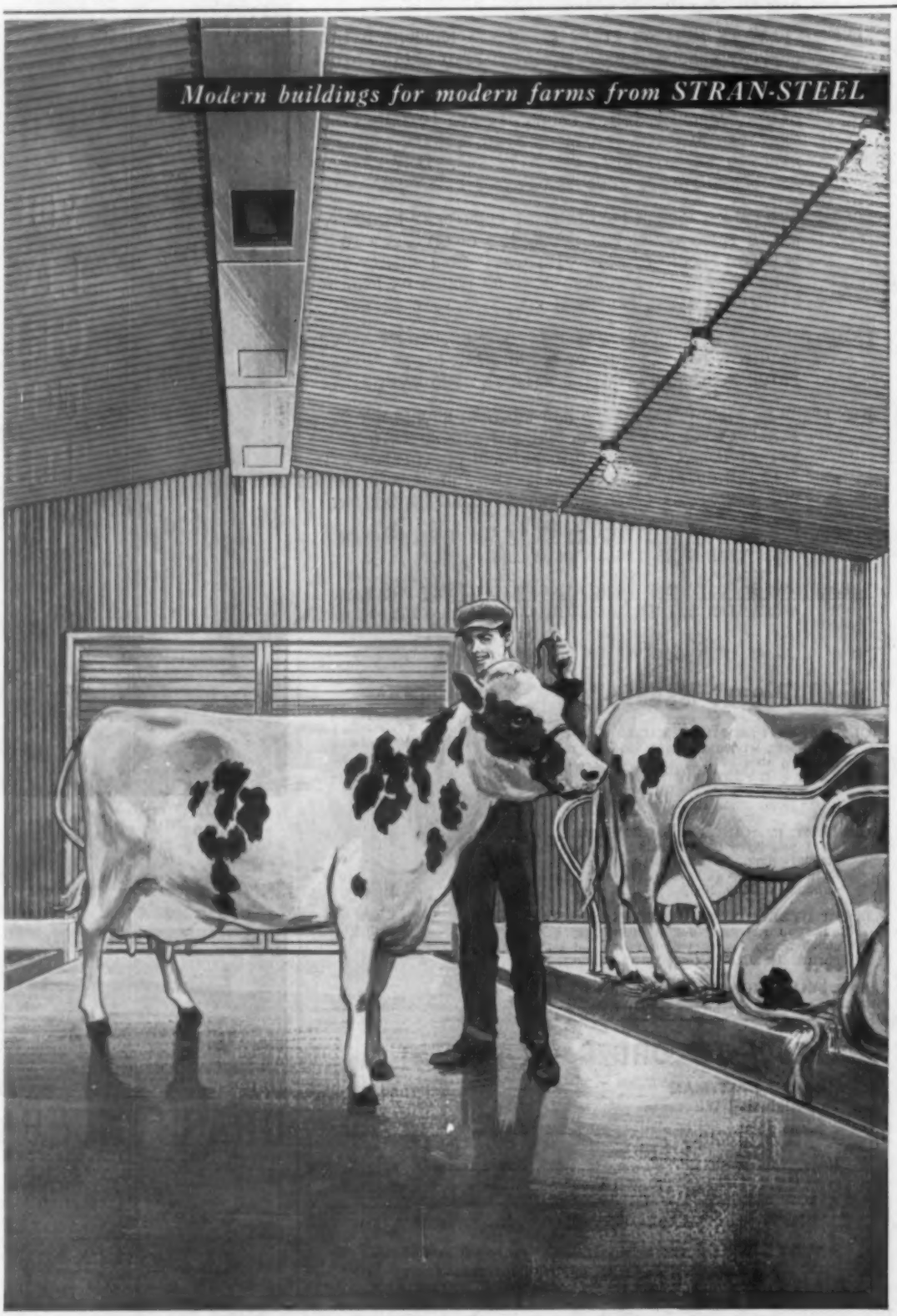
Wake up, women!

Thank you for printing that very "down to earth" article by Edith Long in the November 25 issue. It's the best I have ever read in any magazine — I think you can class it as your prize for 1960.

I spent 21 years in an office. In 1953, I purchased an old rundown place with a good dairy barn and an old house that could have used a lot of remodeling. I think I was talking when I should have been listening, but anyway I ended up with it, along with 23 culls, an old, wornout 8-can cooler, and 2 old bucket floor-type milkers.

It was the local gossip that I wouldn't last until the water got hot. Well, the 20-gallon heater was about shot, too, but I'm still here and the picture has changed a lot.

I got interested in DHIA testing in 1954, and after a short time, I ended up being the DHIA supervisor for this area. I worked 18 to 22 hours every day with my wife helping at the barn and on the books. We were still milking around



35 cows during that time and I ended up in the hospital after nearly three years and I called it quits on testing. For every dollar I made away from home, I lost $5 at home by not being there to take proper care of the cows and things in general.

But, during the time I was a supervisor, I received an education not taught in any college, so this Edith Long story makes me want to say some things all farm women should think about. Of course, I'll get a real cussing from the men, but you would be surprised at the way some dairymen do their wives. Not all of them, but I would say about 90 per cent.

My wife has a much bigger job than mine when she cooks, cleans, sews, and keeps four girls and a boy going, along with myself. My son is a 12-year-old in junior high and plays in the band. He has very little time to help me, as most present-day parents know that if the kids can't think of something to go to, the teachers can. And, you have to let your kids go and be in everything or they will not get the breaks along with the others. It's not fair to the kids nowdays to keep them home to work when the others (town kids) are taking part in all the school activities. So, I milk 40 to 50 cows by myself in about 1½ hours. My son does put out feed at night (usually), and on weekends.

I cannot understand why the women over the country will get up at 4 o'clock in the morning and come out to the cold barn to help milk and then clean up afterwards. It looks like they would have all they can do in the house.

I have heard men brag about their cows and what they have done when, actually, it was the wife who handled the cows and often all alone. When I was testing, I would ask a man the name of a cow, and after all his blowing and bragging about where his cows came from, and so forth, he'd have to ask his wife to give me the cow's name.

At one place, the wife was a little 98-pounder with three kids, the oldest just started to school. Her husband was a big 180-pound picture of health standing around talking to me while telling her to give some cow more feed. She would run to catch the milker before it fell off and she would be burning up the concrete trying to handle three old milkers while he "shot the bull" with me. After the milking was done, she cleaned the barn and the milk room and he would get in his truck and go to town.

What's wrong with women? They should tell these knotheads to either make the living or go on relief. I know it would be hard on some of these men to go to work, but I think it's about time you gals were waking up!

Well, if you never hear from me again, you will know that happened to me — I was talking when I should have been listening. Keep that wonderful magazine coming along and I hope 1961 is a good year for you.

Texas G. R. GREEN

Here's how you can expand your herd and increase your profit

(without adding extra help)

More efficient dairy buildings, by Stran-Steel, help sweeten up the milk checks and free *you* for other chores. Whether you're expanding or building new facilities, versatile Stran-Master housing will increase your profits with more milk per cow and more cows per man.

STRAN-MASTER buildings are ideally suited to either stanchion or loose housing operations. Easy to clean and easy to keep clean, they measure up to sanitary codes. These long-lasting, fire safe structures are designed to incorporate all the mechanical helpers—metered feeding, pipeline milking, and cleaning equipment—which mean less labor per hundred pounds of milk. More than 60 combinations of eave height and building width let you select the management best suited to your own needs.

STRAN-STEEL stanchion barns provide the complete environmental control so vital to top-producing herds. Farm-tested and farm-proved insulation, lining, special ventilation systems and automatic controls designed for your herd size keep cows comfortable regardless of outside temperature. More of your feed dollar is used for production because cows needn't burn extra feed to keep warm.

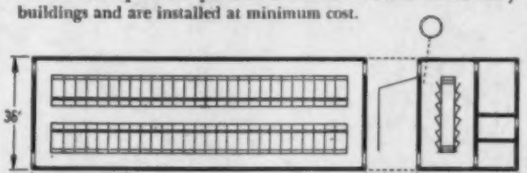
STRAN-STEEL loose housing arrangements are just what the dairyman ordered! This increasingly popular layout gives your cows free access to a feeding area, a loafing barn and an adjoining open lot.

STRAN-STEEL milking parlor and milk room complete your "factory." Dairymen favor heat-reflecting Stran-Satin white panels for roofing and many employ the same color-coated panels for milk room ceilings and walls for their sanitary appearance and because they can be easily cleaned.

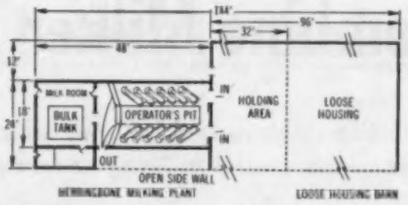
Your initial investment in the complete system which best suits your needs is only 25% of the reasonable total cost under Stran-Steel's exclusive purchase plan. The balance is spread over five years. Up in a hurry, Stran-Master dairy buildings start earning immediately and pay for themselves in a surprisingly short time. Up to stay, they'll go on earning for years and require only minimum maintenance.

Consult your Stran-Steel dealer regarding your particular herd size (or expectations) and space requirements. He is a one-stop source for everything—planning, materials, construction and financing. He can prescribe exactly what you need for a complete and profitable dairy plant and *still work within your budget!* Mail the coupon for further information or see your local dealer.

MILKING PARLORS with herringbone stalls capable of handling 50 to 60 cows per hour per man are made for Stran-Master dairy buildings and are installed at minimum cost.



HERE'S a typical Stran-Steel stanchion barn layout with attached holding pen and milking plant, combining fast, easy milking with individual stall housing.



PERHAPS a loose housing setup like this one would suit your needs best. Stran-Steel can put you in business in a matter of weeks, not months, with a practical, durable Stran-Master.

Stran Steel®

Stran-Steel Corporation, Dept. HD-6
Detroit 29, Michigan

Please rush new Farm Structures Planning Guide and information about Stran-Master buildings. I am interested in a building approximately _____ ft. x _____ ft. to be used mainly for _____ Size of Herd? _____

Name _____ Town _____

County _____ State _____

My farm is _____ miles North South and _____ miles East West of town

STRAN-STEEL is a division of **NATIONAL STEEL CORPORATION**

Use sucker pails

Like so many other readers of our good Hoard's Dairyman, I enjoyed the article, "I am a dairyman's wife," by Edith Long.

It would be nice to have a short article in each Hoard's Dairyman on the lighter side.

Now, let's lay aside the kidding and look at the dairyman's wife. Is she truly leading such a terrible life? I happen to be one and wouldn't be anything else as long as my husband and I keep our good health.

To me it means working hand-in-hand with my husband and teaching our two girls to be prompt and accurate.

It means a family project where we can all work together. Each of us feels we are a spoke in the wheel that earns our living.

It is a healthy life, one that takes us out in the fresh air each day, letting us see the beauty of the sunrise and the sunset. We are so close to all the natural beauty God created!

I enjoy keeping our milk house and milking parlor sanitary and clean and thinking of all our city friends who benefit from my labor.

At the present time, I have seven of those "pesky" calves to feed that seem to give so much trouble to us dairymen's wives! But, I start them on sucker bottles and keep buckets of warm water in their pens. When about 10 days old, I offer their milk to them in pails and remove the bottle. I never put my fingers in their mouths or push their heads into a pail.

Maybe I'm just lucky. But, calves and all, I wouldn't change places with any of my friends who breakfast in bed and never know what it is to see the sun come up in the morning.

Washington MRS. R. E. GORDON

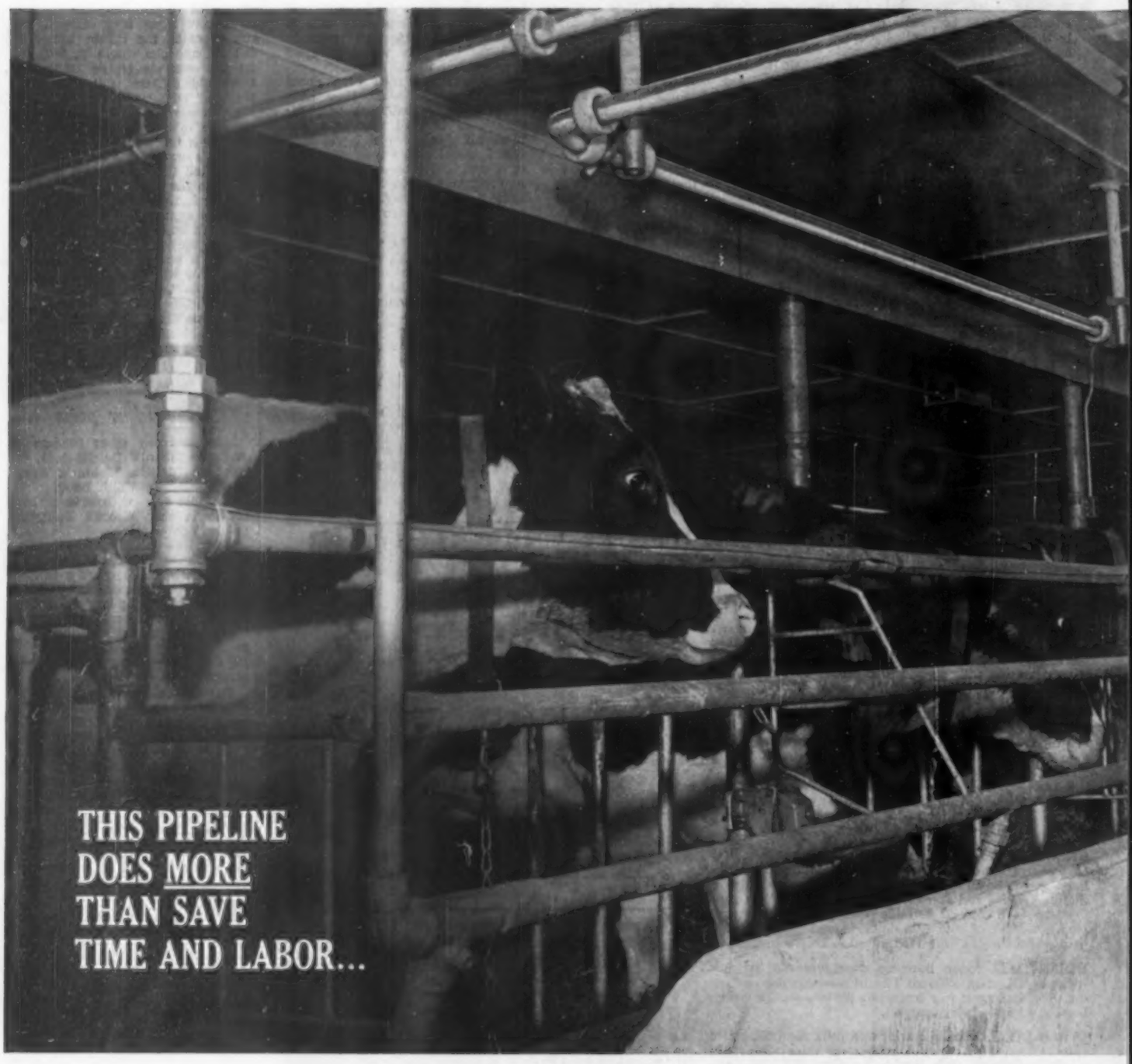
Heads-up technique best

It may be funny, I concede that, but I was surprised that you would publish an article describing the pail-feeding method for calves.

In all the expert literature I have read concerning the feeding of milk to calves, it is generally agreed that the heads-up technique is the best. That is, from a nipple pail as it simulates the natural pose of the head when drinking from the cow. This position prevents milk from entering the wrong stomach, as well as helps prevent gulping of large amounts of air, both risks taken by the pail method.

We always have taught our calves to drink from a nipple pail and as I seem to be elected to care for

(Continued on page 346)



De Laval Combine Milker keeps udders healthier,

A 40-cow stanchion barn installation costs only $1.40 per milking. And you get the extra benefits of fast, clean, gentle milking at no extra cost!

When you move up to pipeline milking, move up to better milking, too. Get a Combine Milker! It pays to buy the best because it costs no more than the rest.

Why fast, clean and gentle milking is so important

You need fast, clean milking for top production. When cows let down milk you must get it fast... before udder muscles tire and stop the flow. The milk you *don't* get at this time is lost forever – and when you lose milk twice a day you lose money. Slow milking can also shorten the lactation period and impair udder health.

You need gentle milking to keep cows healthy. Rough milking can make teats hard, sore, lumpy ...can cause congestion in teat canals and lead to udder troubles. But De Laval milking is remarkably gentle on your cows' sensitive teats and udder tissues. This keeps production and herd health up, mastitis down!

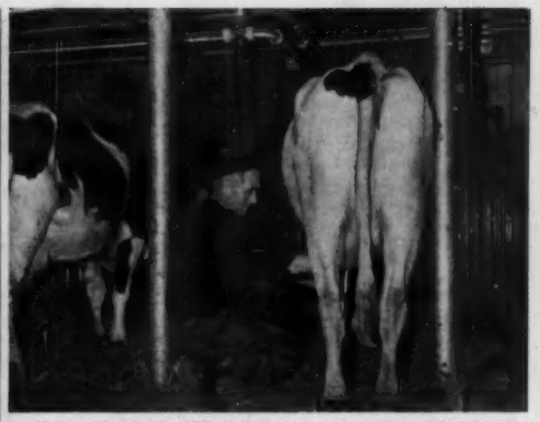
Why De Laval milks better

Only De Laval can give you fast, clean, gentle milking because *only* De Laval has this better milking team:

- "Full-Flo" teat cups with narrow-bore liners. Other pipelines use large-bore liners that cause teats to "balloon" to fill extra space. But De Laval narrow-bores fit snug, reduce impact on teats when liners collapse, minimizing danger of udder injury.
- Uniform pulsation. De Laval's magnetic pulsation means *absolutely uniform milking*. There's never a variation no matter who milks.
- Rapid-recovery vacuum. Our *rotary* vacuum pump cuts vacuum drop-offs that cause slow, erratic milking... assures rapid vacuum recovery for fast, uniform milking.

More sanitary automatic washing

Pressure washers flood lines and slowly push water through at 4 mph. De Laval's "Turbulent Action" *vacuum* washer pulls water through lines at up to 35 mph to *scour* away fat and milk. And only De Laval does not re-circulate used rinse water. Result – more sanitary cleaning, lower bac-

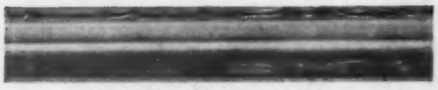


Milking with a Combine Milker is fast, clean, gentle on the cow. Easier, too, because you spend less time stripping and treating for mastitis.

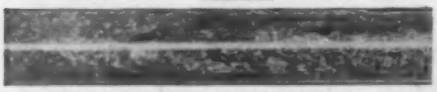
This is a modern, efficient De Laval-equipped milkhouse. Far fewer pipes, wires – everything's electronically operated by a control panel.

De Laval milking is gentle. Put your thumb in teat cup of a De Laval and any other milker for 2 minutes. Feel the difference – see the difference! Thumb at left is red and sore. Other thumb, from a De Laval, has little redness, is not sore.

more productive—and it doesn't cost one cent more!



"Slow Action" Pressure Washing



"Turbulent Action" Vacuum Washing

teria counts, higher quality milk *with 60% less water and detergent, less electricity*. And it's so automatic you just push a button and walk away.

The price is right

A 40-cow around-the-barn installation costs only $1.40 per milking after 10% down. You can spread payments over 48 months. Price includes installation and all equipment for milking and automatic washing. For the *exact* cost on your farm, contact your De Laval Dealer.

Choice of all systems

De Laval offers all systems—side-opening, herringbone, walk-thru and U-shape parlors or around-the-barn installations. Your De Laval Dealer has everything you need, including De Laval stalls that are built better to give you up to twice the life of other stalls.

Free pipeline milking guide

"Your Pipeline Milking System"—an informative, up-to-the-minute 24-page book gives you the complete story on all milking systems. Loaded with illustrations and practical information. It's free! Get it at your De Laval Dealer, or write: The De Laval Separator Co., Poughkeepsie, N. Y., or 5724 N. Pulaski, Chicago 46, Ill., or 201 E. Millbrae Ave., Millbrae, Cal.

...10% down, up to 4 years to pay.

DE LAVAL

DE LAVAL COMBINE MILKER®

(Continued from page 343)

the calves, along with other things, I can say from personal experience that teaching a calf to drink from a nipple pail saves much work and mess and exasperation!

After taking the calf from his mother, I usually withhold milk for several hours, to ensure hunger and enthusiasm, then try him on the nipple pail. I rarely have had to struggle with a calf more than once, and then not very hard.

I can assure all the dairy wives reading Mrs. Long's article, as well as the esteemed lady herself, that should they decide to abandon the old-fashioned pail-feeding method, they would see the advantages.

My calves usually learn to drink on the first lesson, if somewhat inexpertly, and by the third, they are off to the races!

We do enjoy your magazine immensely—it is by far the best farm magazine we receive.

California MRS. J. A. JONES

Urges open debate

With regard to a sensible farm program, the farmer is getting his fill of listening to sweet talk that is always leading him off on some likely looking detour. He is bound to see eventually that his true course is to control, or at least dispose of, farm surpluses through his own agencies.

When it is made clear that he has to choose either the continuation of the present disorganized, disadvantageous setup (which has virtually reduced him to the status of second-class citizenship) or else choose effective cooperation and solidarity (which alone can give him economic equality and full citizenship) — when he sees cooperation is the key to a better life, he will cooperate.

Farmers, of course, must be informed as to the plans they are expected to support. "How," farm leaders will ask, "do you inform those who avoid meetings and don't read pamphlets and magazines?"

Perhaps the answer is to try a different tactic. I suggest the old but long-unused device of open debate. Let us face the facts. The way farm problems are customarily presented — orally more often than by the written article — they are pretty dull stuff. Of course, to make discussions of an unglamorous subject always appealing would tax the talent of a literary genius and we can hardly expect farmers' organizations to be keeping a stable full of such geniuses around.

Yet all too often, it must be said, speakers — nor are authors all exempt — lack the courage to challenge the "mood" of their audiences. They dress up some old platitudes, drop in a few news items, and wind up with a funny story. After such a session, undoubtedly lots of the farmers think what a few put into words, "I didn't learn a thing, hardly. These fellows all follow about the same pattern. I might just as well have stayed at home and enjoyed the TV."

As the figures brutally prove, most all, except a few of the hardiest, do stay at home.

If experience in other fields can be relied on, the interest at farm meetings might be helped by presenting opposing views. That, at least, would insure the specialists got down to brass tacks. Clashing wits and opposing opinions seldom fail to stir up interest. Informationwise, there is no better way of spotlighting facts or emphasizing issues than to turn rival champions loose in debate.

Could farmers hear the Grange not only advocate the domestic parity proposal but also state, candidly, why it is superior to Farm Bureau's hands-off policy — with the Farm Bureau, of course, having full opportunity to defend its position and criticize the Grange — the audiences would surely get something to take home. Until a better procedure is found, open debates are worth a trial.

New York C. B. FRANKLIN

Oldsters - animal fats

After reading your editorial on animal fats and the Heart Association I thought you might be interested in the series of articles in the Saturday Evening Post (particularly August 22, 1959) entitled "The secrets of long life." Most of these old people were not adversely affected by a diet rich in animal fats.

Ohio ARTHUR G. CORRELL

Lower fat milk

I was intensely interested in William S. Epple's article, "Is milk fat to blame for heart disease," for I read it just a few days after reading Time magazine's cover story on Dr. Ancel Keys and his cholesterol research. I was impressed by Mr. Epple's sane and sensible presentation of the other side of the picture, and particularly his summation of three steps the dairy industry must take to keep in step with changing dietary needs.

As a homemaker, I am interested not only in providing tasty and nourishing food for my family, but also in avoiding the intemperate overfeeding that has made obesity one of our nation's public health problems. In this I believe I am typical of a growing number of food consumers who are more and more looking for leaner meats, lighter desserts, and, yes, milk and dairy products with low fat content.

The overemphasis on butterfat in milk has certainly contributed to the staggering surplus we now have on hand. The public is ready for fluid milk lower in butterfat.

Dairymen and processors must

THIS EXTENSION PHONE
SAVES ITS MONTHLY COST
...EVERY WORKING DAY

Charles Nemet has a 280-acre farm near Hampshire, Illinois. He grows corn, oats and soybeans, raises market hogs and milks 35 purebred Holstein cows. It takes about 15 telephone calls a day to keep his operation going.

Until about five years ago, Charlie handled these calls on the house telephone. Ten to twenty times a day he tracked to and from the house to take or make calls. It was costing him at least an hour a day.

So Charlie had an extension phone installed in the milkroom where it's handy to the dairy barn as well as to the other buildings. That stopped the running.

Now Charlie figures his milkroom phone saves him a good hour a day. And this one hour saved is more than enough to pay its monthly cost.

Look at it another way. In the past five years this extension phone has saved him over 1500 man-hours. That's a lot of farming.

Why not have a look around your operation and see how many hours of your time an extension could save? They're your own hours—the kind you can't hire.

Call your telephone business office. They'll be glad to help.

BELL TELEPHONE SYSTEM

hurry to get in step. A tasty product somewhere between out-and-out skim milk and the rich homogenized milk now available is long overdue, and would prove immensely popular among the buying public. I believe this would actually boost the consumption of fluid milk more than any other change the industry could make, particularly if it could be offered at a price competitive with other beverages.

MRS. S. D. ALEXANDER
North Carolina

Need more little businesses

We read and hear so much about increasing the size of dairy herds and decreasing the number of them. It's that way in so many lines of business. The big fellows are crowding out the little ones. If this tendency continues, the family farm may become a thing of the past.

Our country would be much better off if there were more little businesses. The big labor unions would not be able to run things as they do. They are more responsible for the high cost of everything than any other single item.

To get back to dairying, there is much talk of creating a surplus of milk. I think if they would adopt the idea of paying the highest price for the first 10,000 pounds produced in any month, and a little less for the second 10,000 pounds, and progressively less for each unit of 10,000 pounds per month, it would help encourage the family type farm, an important part of American life. I think some of the big fellows are greedy and want more money than they need.

Pennsylvania MERLE D. LEFEVRE

Myth discredited

I believe it should be pointed out to not only milk producers but to all farmers that only a 5 to 10 per cent reduction last fall of the laying flock increased the price of eggs almost double of what they were selling for a year ago.

Also, that soybeans are now selling for 38 cents a bushel above the loan price, not because the support price was raised but simply because the supply is about in balance with demand. So, it is apparent that the open market will pay a higher price than the support price of any commodity, including milk, **if supply is in balance with demand.**

If corn production were reduced only 10 per cent to four billion pounds (about what is needed at present time), the price of corn would surely raise to at least $1.25 per bushel. Then, at this price, the total crop would be worth over a third of a billion dollars more than the present crop of almost 4.4 billion bushels would be worth at the present support price of $1.06 per bushel with 10 per cent less cost to the farmer for plowing, planting, cultivating, and harvesting. And it would put an effective curb on hog and beef production as well, and possibly milk production also.

Several weeks before the election last fall the bakeries raised the price of bread by from 1 to 2 cents a loaf. But I have yet to hear or read of any squawk made by the consumer. Yet both Benson (or U.S.D.A.) and Shuman (Farm Bureau), and many farm papers, have taken every opportunity to brainwash the farmers into believing the consumer will not stand for higher food prices.

So this myth has been thoroughly discredited.

Indiana CLARENCE WILDE

FIRST CHOICE

FIRST

Cunningham®
Hay Conditioners

First in the field and
First in sales . . . now
First to be Farm-Fitted!

Always the farmers first choice . . . now Cunningham is first to give you a choice of so many options. Years ago, Cunningham pioneered the first, practical, soundly engineered hay conditioner. Others followed, but Cunningham stayed ahead . . . well ahead in sales with over 30,000 Cunningham Hay Conditioners in the field today! Being first is one thing . . . staying first is another . . . and again, Cunningham lengthens its leadership by being first to introduce a complete line of Farm-Fitted Hay Conditioners.

When you buy a Cunningham you have 8 Farm-Fitted Models to choose from . . . you fit the machine to your hay field! If you want large wheels or small . . . 2 joint P.T.O. or 3 joint fully adjustable P.T.O. . . . steel crimping reels or rubber reels . . . or most any combination of hay conditioner features that work best for you . . . Cunningham has them! You'll find a Cunningham model that fits your farm . . . and your pocketbook. Why settle for second best . . . buy the conditioner experience builds . . . buy Cunningham.

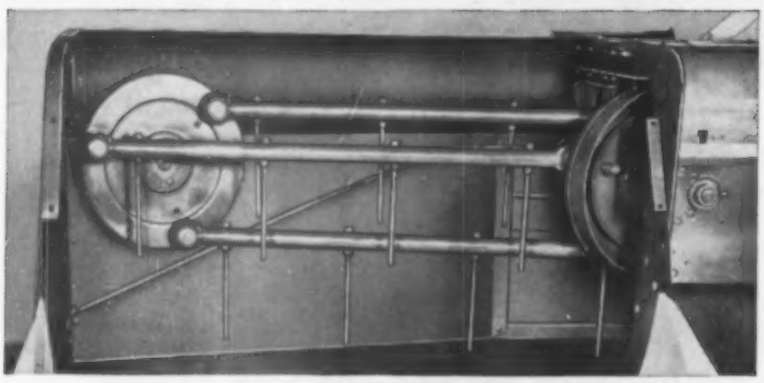
If you think first you'll buy Cunningham!

See all 8 Models at your Dealers now!

Cunningham®
Hay Conditioners

Corner of Rose & Gillette Streets, LaCrosse 23, Wis.

FIELD-TESTING THE OLIVER 62 BALER



Time: 1 hr.
Tons baled: 13.44
Fuel cost: 3¢
per ton

1:16 Under way only 16 minutes...and over 100 bales already. The Oliver 62 is working against a stop watch. Test is being conducted in a 20-acre alfalfa-clover field averaging over 1⅓ tons per acre. Baler is running at a standard 70 strokes a minute...at least 11 beats per bale. How much can it bale in 1 hour? How will it stack up against those claims for family-sized balers?

1:28 Through a sharp turn and not a second lost. Oliver's close-coupled, pivot-balanced PTO drive is the big time- and money-saver on square corners. No power stoppage, no hay missed. Every 9 to 10 seconds—another bale weighing about 70 pounds.

1:48 How can the Oliver 62 hold that steady pace? Easily. Just look inside—at the patented Roto-Flo Feeder. Rotary tine bars insure positive, even flow of material. No plugging. Here's continuous feeding—not intermittent forking. Every bale is even in density, firm and full at the top.

2:00 Time's up—and up goes a new record! By count—384 bales...13.44 tons of hay ready for storage. And that penny-pinching Oliver tractor did the job on 2.3 gallons of 19¢ gas—only 3¢ per ton. Finally—the quality test. These leafier beats (handled gently but fast) are far richer in proteins and minerals. This is the way to put up better hay in a hurry. Isn't it time for a new Oliver baler on *your* farm? Oliver Corporation, Chicago 6, Illinois.

NOW! EARN 6% ON CASH OR TRADE

SEE YOUR
OLIVER
DEALER

Turn to your dependable Oliver dealer when you need hurry-up service and genuine Oliver spare parts.

HOARD'S DAIRYMAN
Founded in 1885

PLOWING UNDER this thick stand of Vernal alfalfa incorporates organic matter into the soil and improves its tilth.

All soil needs organic matter

There is more to it than spreading manure. Plan organic matter additions . . . fertilizer costs will be lower and yields higher.

by R. L. Cook

ORGANIC matter makes up only a "few per cents" of most of our good soils. In fact, a soil containing only 1 per cent, or less, organic matter may be quite productive, if properly managed.

Dr. Wallace Fuller, head of soils at the University of Arizona, says that organic matter plays a very important role in Arizona's irrigated soils, even though total organic matter is only a fraction of a per cent. He says it isn't the total amount but the "turnover" which is important.

A horse, according to Fuller, doesn't care how much water is in a tank, but he is concerned with the rate of refilling. Furthermore, a dairyman does not fill a large tank with water and go about his summer's work expecting the water to last his herd until fall. Perhaps he fills the tank every week or every day or twice-a-day, depending on the size of both tank and herd. Even better, he installs a float valve and an electric pump. Then the tank stays full. He establishes a schedule for water replenishment.

Set up a calendar . . .

The good soil manager sets up a schedule for organic matter replenishment like the dairyman does for water. Because the organic matter schedule is seasonal, let us call it a calendar.

Organic matter is important because it furnishes food for the billions of "bugs" (soil microbes) below the surface of the soil in exactly the same way that alfalfa does for the cows above the surface. When a fresh supply of organic matter is plowed into a soil, the microbes immediately start eating. We say decomposition starts.

When microbes eat, they produce by-products as do all animals. These are waxes and resins, sticky in nature. Together with dead microbes these substances become the cement which sticks clay particles together to form soil granules or aggregates, structures which are necessary if we are to successfully farm heavy clay soils. These cemented aggregates give a clay soil the characteristics which we call tilth, making it loose, porous, and receptive of water.

Microbes need air . . .

Organic matter added to a "dead" soil will not bring about good tilth. Why? Because only the by-products of the microorganism activity (decomposition) can serve as the essential cementing compound. A soil without a flourishing micro-population will never have good tilth, will never be loose, friable, and loamy. It will never be a productive soil until the organic matter decays.

This means we must keep soil in a state favorable to the growth of the microbes, moist but not saturated. Perhaps you need tile for quick removal of excess water. Too much water means too little air and the microbes stop working.

Soils must not be hard. Packing drives out air and keeps water from soaking in quickly. This allows run-off and induces erosion. In fact, soils should be just as loose as we can leave them and get crop seeds to germinate. Except right in the row, we should avoid all compaction with implements. Rains and gravity will do enough packing.

Loose soils are a picnic grounds for soil microbes. Also for plant roots. Both flourish and the part of the corn which we see also flourishes.

Soil microbes perform another good deed besides that of making good soil tilth. They give off carbon dioxide as does an animal when he exhales his breath. The carbon dioxide is absorbed by water to form carbonic acid. This makes soil minerals available so we need less commercial fertilizer to produce a high yield. It all points to the importance of feeding the microbes to keep them working.

A happy microbe is one that is well fed, so let's get back to the organic matter calendar and set up some plans for keeping the microbe's larder filled.

Keep microbes eating . . .

If a flourishing micro-population is so important in our soil, it follows that additions of food should be frequent enough to keep them eating all the time. Studies with soil microbes show that in a loose, friable soil, a cornstalk will decompose in a few months and an alfalfa or sweet clover plant in probably as many weeks. Amount of nitrogen in the soil has a lot to do with decomposition time. Alfalfa is high in nitrogen, whereas cornstalks are low.

When all fresh organic matter is gone, the decomposing microbes die and others consume their bodies and finally start working on the by-products *(Turn to page 376)*

The author is head of the soils science department, Michigan State University.

Farm Flashes . . . .

Seasonal reminders and research notes for the dairyman

CALVES THRIVE ON DRY FEED

An Iowa State University nutritionist says that dairy calves given a palatable, nutritious starter as early as 4 days of age can be switched over to all-dry feed as early as 1 month of age.

In tests conducted at Iowa State, calves given starter free-choice from 4 days of age and weaned from milk when 1 month old, ate more starter per day for the first 2 months.

These calves gained nearly as well as a group fed some liquid feed for 7 weeks. They ate about 2½ pounds of starter per day the first week they were on the all-dry diet and gained 1.1 pounds in body weight per day per head during the first 2 months.

Calves will eat only small amounts of starter during the first 2 or 3 weeks. After this, they will eat more if their milk ration is cut back. It should not contain much fiber, but a good starter should contain at least 16 per cent protein.

Studies further show that calves prefer whole, coarsely-ground or rolled concentrates rather than finely-ground ones. Molasses will make the starter more tempting.

The diet used included ground corn, crushed oats, soybean oil meal, blackstrap molasses, minerals, and vitamins A and D.

Good-quality hay in the diet will enable you to limit the starter to four pounds per day. It is important to keep fresh, clean water available, especially after milk feeding is stopped.

DO MILK PIPELINES NEED BOOSTER HEATERS?

Pipeline milking systems probably don't need booster heaters to keep detergent rinsing solutions hot. Proper cleaning with new type chlorinated detergents may be enough to keep bacterial levels down.

University of Wisconsin bacteriologists ran a series of tests over a 2-year period on a 160-foot stainless steel pipeline system on a farm. The tests were made on warm summer and cold winter days as well as on moderate spring or fall days.

In one test, chlorinated detergent solution was put into the pipeline at approximately 160 degrees and, by means of booster heating, was kept at temperatures that never dropped below 140 degrees. Bacteria count was less than 20 bacteria per 8 square inches inside the pipeline.

In another test, chlorinated detergent solution was put into the pipeline at approximately 160 degrees. The solution was allowed to cool naturally as it moved through the line without booster heating. The temperature dropped to about 100 degrees by the end of the washing cycle, yet the bacterial count was less than 100 per 8 square inches. That meets the requirements of the dairy sanitation code for a washed and chlorinated pipeline surface.

But when chlorinated detergent solution entered the pipeline at 120 to 130 degrees and was allowed to cool normally during the washing cycle, it came out at 90 to 95 degrees. Out of 37 such samples examined after chlorination, all but one met the requirements of less than 100 bacteria per 8 square inches.

The washing procedure throughout the experiment included a 6- to 8-minute pre-rinse, a 20- to 24-minute wash, a 2-minute cold rinse and a 5- to 6-minute chlorination.

The research men point out that these tests do not mean that all farmers with pipeline systems can do away with booster heaters. A long pipeline, with much of it outside or in an unheated part of the barn, may cool too much in winter. The rate the cleaning solution flows through the line will also have some effect on how many bacteria remain.

KILL WEEDS IN ASPARAGUS

As pre-emergence treatments, 2,4-D (2 pounds per acre), N.P.A. (4 to 8 pounds per acre), 2,4-D E.S. (4 to 6 pounds per acre), or T.C.A. (5 to 8 pounds per acre), have all given good control under certain situations and conditions.

All the materials mentioned are for use only in established beds. For seedling beds, Stoddard solvent (80 to 100 gallons per acre), D.N.B.P. (1 pound per acre), or 2,4-D (1 pound per acre), have been used with some success as pre-emergence sprays.

Monuron, applied to the soil in early spring before shoots appear, at the rate of 1 pound per acre, and repeated at "lay by" time after harvest has given satisfactory control. On heavy, organic soils such as muck or peat, the rate should be about twice this amount.

Still another method of control is to clean up the asparagus bed early in the spring, remove and burn old stalks. Fork or hoe the soil slightly, leveling the area. Then apply cyanamid at the rate of 1 pound per 45 square feet of bed and rake in very lightly. To complete the job, moisten the area slightly by sprinkling.

After the asparagus has been harvested, cut all shoots to below ground line, fork or hoe the area again and then apply another pound of cyanamid for every 45 square feet. Asparagus is then allowed to grow so it will manufacture and store food in the crowns for a successful cutting season the following year.

PLASTIC KEEPS CONCRETE DRY

Soil moisture can work its way up through even the best of concrete. It then evaporates from the surface or moistens material stored or lying over the concrete.

Straw, hay, or fertilizer stored in contact with such unprotected concrete flooring molds or cakes, resulting in moist bedding and litter.

A Rutgers University farm engineer says all these difficulties can be overcome at little extra cost when a new floor is laid. All that is necessary is to lay the floor in two applications with a sheet of 4-mil polyethylene film sandwiched between them. This prevents moisture migration.

QUICK BUTTERFAT TEST BEING DEVELOPED

A new butterfat test that uses centrifugal force is being developed by a Rochester, N. Y., chemist under a grant from the National Institutes of Health. If practicable, only a fraction of a drop of milk would be needed to determine butterfat content.

The new test would use a high-speed centrifuge revolving at 12,000 rotations a minute and would take only 5 minutes.

Myron Cucci, who devised the test, got the idea when he used a centrifuge in a hospital to separate various blood components.

DELAYING PLANTING REDUCES OAT YIELDS

A four-year study in New York State shows that you can expect an average loss of 1½ bushels an acre for each day that oat planting is delayed after late April. Putting this another way, if planting is put off for as much as three weeks after the usual late-April deadline, you stand to lose more than 30 bushels an acre.

The Cornell research shows that if oats are planted April 27, the yield will be about 84 bushels per acre. If planting is delayed until May 8, the yield will drop to 60 bushels an acre. A May 16 planting will see a drop to 53 bushels an acre, and if oats aren't planted until May 27, the yield will be only 38 bushels an acre.

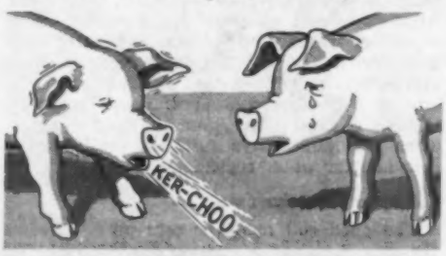
The exact date of possible first planting will depend upon location and weather. This particular study was carried out at Ithaca.

WATCH FOR SNEEZING PIGS

The American Foundation for Animal Health warns farmers to watch out for sneezing in young pigs. Sneezing is one of the first symptoms of several serious pig diseases, including atrophic rhinitis and necrotic rhinitis, or "bull nose."

One of the principal results of atrophic rhinitis may be a change in the bone structure of the pig's nose. Because symptoms of the two types of rhinitis are similar, a veterinarian should make a diagnosis when sneezing symptoms appear.

Pigs from 2 weeks to 2 months old seem to be the most susceptible to atrophic rhini-



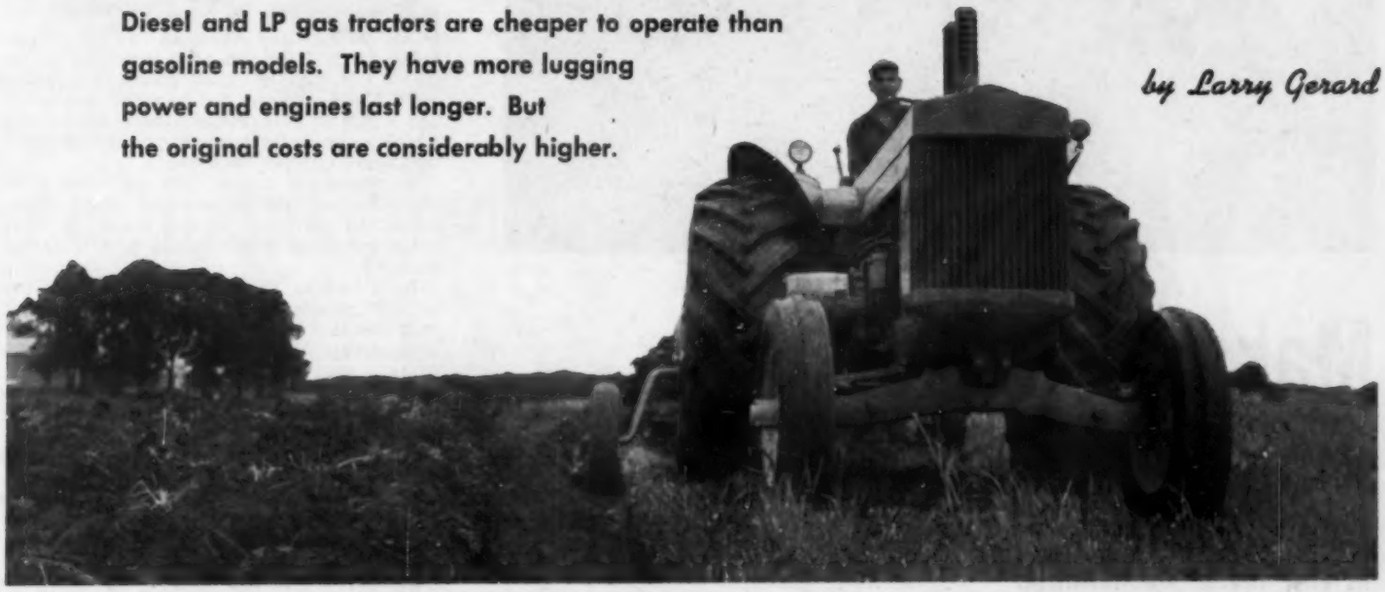
tis. However, older animals may be carriers without showing any visible signs. It is believed the disease usually is introduced into the herd by an infected replacement animal.

In addition to sneezing, other symptoms of atrophic rhinitis include discharge from eyes, failure to make satisfactory gains, rubbing snout against stationary objects or legs, shaking the head, and nasal hemorrhage.

More power for your money

Diesel and LP gas tractors are cheaper to operate than gasoline models. They have more lugging power and engines last longer. But the original costs are considerably higher.

by Larry Gerard



TAKE a careful look at the different fuel-burning engines available before buying your next tractor. If you plan to use the tractor a good deal, chances are a diesel or LP gas engine may save you money.

First cost is more than that of a gasoline tractor. Although the cost will vary with different makes and models, a diesel tractor in the 50- to 55-horsepower class usually sells for about $750 more, and an LP gas tractor about $270 more than a comparable gasoline model with about the same accessories.

The difference may be a little more in the larger 5-plow tractors and is less for smaller tractors of comparable horsepower. The difference between some makes of 3-plow gasoline and diesel tractors is less than $450.

Where a tractor is to be used upwards of 1,000 hours, fuel savings alone can make up the price difference easily in a few years' time. A diesel tractor uses less fuel per hour than a gasoline tractor, and the fuel costs less per gallon. Gasoline tractors operate more efficiently at almost full load operation. When they are slowed down or run at partial load, horsepower developed per unit of fuel drops sharply. Diesels don't drop off so much.

The accompanying chart prepared from a recent study made by a gasoline corporation shows that a $600 higher first cost for a diesel will be paid off in four years, if the tractor is used at least 1,060 hours annually and if there is a price difference of 3 cents per gallon between diesel fuel and gasoline. If the tractor is used 800 hours annually, fuel savings will pay off the higher cost of a diesel in 10 years. And, if diesel fuels sell for 4 cents less, the tractor would need to be used only 680 hours annually for the extra first cost to be amortized in 10 years.

One researcher points out that if a 50-horsepower diesel-burning tractor can be purchased for less than $600 more than a gasoline model, the possibility of it saving you money is certainly greater. Because of the smaller price difference in 3- and 4-plow tractors, there is a good chance that they may be economical if they are used a considerable amount. Large diesel tractors need to be used more to make them pay.

On the average, 9 per cent of the tractors in this country are operated enough to amortize the higher cost of diesel tractors in four years. A much greater percentage of tractors are used enough to pay the additional costs, if amortization is figured at 6, 8, or 10 years.

Profitable use of LP gas in farm tractors usually requires large quantities of consumption — several tractors or use of LP gas for diverse purposes — and LP gas prices of no more than half the price of regular-grade gasoline after tax refund. As more farm folks begin to use LP gas for home heating and cooking, grain drying, heating water for livestock, and brooding chicks, it is very likely that it will become more profitable as a tractor fuel.

The chart shows that if you can purchase an LP gas tractor for $370 more than a gasoline model and if fuel sells for 6 cents less, it would take 10 years to amortize the additional investment, if you used the tractor 1,360 hours a year. If the added cost is only $270, and if LP gas can be bought for 10 cents less than gasoline, the tractor would need to be used only 600 hours to amortize the cost over 6 years.

In a study made by University of Missouri agricultural engineer C. L. Day, it was shown that when used 1,000 hours or more per year, the cost to operate a 3-plow gasoline tractor is about 97 cents an hour. This is compared to 88 cents for a similar model LP gas tractor and 86 cents for a diesel. Cost to operate a 5-plow diesel tractor was $1.21, about 25 cents an hour less than for a gasoline model and 5 cents less than for LP gas.

Another virtue of diesel and LP gas engines is that they have more lugging ability. Diesel compression ratios are much higher than in gasoline engines and as a result they have more torque and power. However, this doesn't mean that you can abuse them by continuously overloading.

The cheaper-to-operate tractors last longer, too. Diesels in trucks and other hard-working equipment operate almost continuously for years without attention. University of Illinois farm engineer Wendell Bowers says that LP gas and diesel engines generally require fewer overhauls than gasoline models. He points out, however, that when a diesel is overhauled, the cost is often higher.

Diesel fuel is an oil — it acts as a lubricant in the upper cylinder and that means less wear. There are no spark plugs, distributor points, or other parts of an electrical system to need attention. The fuel burns slower, is safer to handle and store, but needs to be kept very clean. Diesel engines have high-cost precision parts that can be scratched easily by dirt or rusted *(Turn to page 379)*

How to justify added capital investment . . . .

Type of tractor	Diesel		Diesel		LP-gas**		LP-gas**	
Higher diesel and LP-G cost compared to gasoline tractors	$600		$750		$270		$370	
Fuel price difference (Gas minus diesel fuel or LP-G)	3¢	4¢	3¢	4¢	6¢	10¢	6¢	10¢
Amortization time — yrs.	Hours of use per year							
2	1,210	1,060	1,530	1,340	2,280	880	2,760	1,060
4	1,060	920	1,350	1,170	1,840	720	2,260	870
6	950	820	1,220	1,050	1,520	600	1,870	730
8	860	740	1,130	960	1,270	510	1,580	620
10	800	680	1,060	890	1,080	440	1,360	540

*Ethyl corporation chart. **LP-G figures include $400 fuel storage cost and are for farms with one tractor making additional use of LP-gas.

HOURS OF OPERATION a year needed to amortize higher cost of diesel and LP gas tractors. If a diesel costs $600 more than a gasoline tractor and diesel fuel costs 4 cents less, you should operate a diesel tractor 820 hours per year for 6 years to justify the added capital investment.

PROPER USE OF NITROGEN raised protein content of Coastal Bermuda grass as high as 23.7 per cent. Five cuttings yielded 10.6 tons forage.

Make fertilizer pay your feed bill

In East Texas, well-fertilized Coastal Bermuda produced protein for 2.4 cents a pound; "in the bag" it would have cost 7.5 cents.

by William H. Longstaff

HOW many times have dairymen, who usually wind up paying cost and plenty of "plus" for everything they use, grinned wryly at the urban boast, "I can buy it wholesale!"? Perhaps, though, there is something dairymen can get wholesale, as a matter of fact, considerably below wholesale.

That something is the all-important element of protein in livestock feed.

Investigations conducted the last three years by the Texas Research Foundation have proved that protein can be produced through proper use of fertilizer on Coastal Bermuda pastures and meadows at a cost of 2.4 cents a pound, in contrast to a retail cost of 7.5 cents.

But first, here are a few facts about the country where we conducted the study.

Soil, a Sawyer fine, sandy loam; annual rainfall, 45.29 inches, with drouthy summers; normal January temperature, 48.1 degrees; normal July temperature, 82.5 degrees; last killing frost of spring, March 17; first killing frost of fall, November 15.

Previous field work and soil test information in the area had proved that the nitrogen content of the soil was low.

The extractable phosphorus was low, while the exchangeable potassium was medium in regard to crop production.

This raised the question: Would potash limit hay production if nitrogen and phosphorus were applied in sufficient amounts during the drouthy summers?

With these facts in mind, we began the experiment in 1957 by applying various fertilizers to established Coastal Bermuda.

We limed the entire stand and replicated all fertilizer treatments. At no time did we use supplemental irrigation.

We applied the equivalents of 80 pounds of nitrogen and 100 pounds of phosphorus an acre uniformly on all plots about April 1, when the grass showed signs of growth. In addition, we put 75 pounds of potash on one-half of each plot.

We made our first cuttings each year when the grass was 18 inches high, around June 1. Immediately after this cutting, we applied an additional 100 pounds of nitrogen (300 pounds of ammonium nitrate) to one-half of each plot. We left the other half of the plot to measure the carry-over effect of the fertilizer previously applied.

We repeated this procedure of adding nitrogen to the same half of each plot after every cutting during the growing season. Three to five cuttings were obtained, with intervals between cuttings varying four to seven weeks.

Applied 100 pounds nitrogen . . .

The first year, we got 3.98 tons of hay an acre on the land which had received no additional nitrogen after cuttings. On the land which had received 100 pounds of nitrogen after each cutting except the last, we got 8.17 tons of hay an acre, an increase of 4.19.

As there were three cuttings that year, the increase was the result of 200 pounds of nitrogen, no nitrogen being applied after the last cutting. The first year, the Coastal Bermuda received only 1.4 inches of rain during June, July, and August.

The erratic Texas weather gave us 19 inches of rain the next year, thereby enabling us to make five cuttings. Total yield from the plot on which no additional nitrogen had been applied ran only 3.74 tons an acre, even lower than during the preceding dry summer.

Produced 10 tons . . .

On the plot which had received the additional 400 pounds of nitrogen — 100 after each cutting except the last — the total yield of hay was 10.66 tons an acre, an increase of 6.92 tons due to the fertilizer.

In 1959, the stand received 11 inches of rain during the summer, with the result that yields fell between the low of 1957 and the high of 1958.

Averages for the three-year period showed an increase of 5.17 tons of hay an acre a year where extra nitrogen had been used. The total represented an increase of 1.75 tons of hay for every 100 pounds of nitrogen.

Averages on the half-plots where we applied the potash were interesting. Where no additional nitrogen was used, we cut an increase of 0.66 ton an acre annually, an increase due directly to the potash. But where we did add nitrogen, the corresponding average was 1.80 tons. Potash, therefore, became a highly significant factor in production where additional nitrogen was used.

Dairymen, of course, like all other livestock farmers and businessmen, are interested in the economics of this operation. If it won't put more profit in the pail, why fool with it?

Let's look at 1958, the best year. The use of 400 pounds of additional nitrogen that year resulted in an increase of 6.92 tons of air-dry hay. Valued at $24.75 a ton, or 75 cents a bale, the gross represented $171.27.

Cost of the additional nitrogen at 12 cents a pound came to $48 which, when subtracted from the gross, left a balance of $123.27.

Increased protein content . . .

But how about the quality of the air-dry hay in terms of protein content? How does it compare with the 7.8 to 11.7 per cent protein needed for maintenance and for growth?

In 1957, the protein content where no additional nitrogen was used was 10.3 per cent in the first cutting, 7.0 in the second, and 4.4 in the third.

Obviously, cattle feeding on the second and third cuttings would have needed a protein supplement.

But where additional nitrogen was used, the protein content stood at 10.3 per cent in the first cutting, 10.4 in the second, and 8.8 in the third — all higher than the minimum protein requirement.

The protein values showed the same trend in 1958. Here are the percentages we figured on hay from the stand where no additional nitrogen was applied:

First cutting, 11.4;
second, 10.4;
third, 8.5;
fourth, 6.6;
fifth, 5.8.

Cattle on hay from fourth and fifth cuttings would have needed protein supplement.

Where additional nitrogen was used in 1958, the protein percentages stood:

First cutting, 11.4;
second, 14.6;
third, 17.3;
fourth, 12.1;
fifth, 12.4.

In grab samples of hay we took at various stages between cuttings on the nitrogen reinforced stand, the protein content ranged as high as 23.7 per cent.

These represented protein values in hay cut from grass 18 inches high. For the dairyman's purpose, a hay with a protein value of at least 17 per cent could have been obtained by cutting grass when 12 to 15 inches high.

A more practical way to present the protein content is conversion of percentages to actual pounds of protein produced an acre.

In 1957, where additional nitrogen was used, 889 pounds of additional protein was produced; the next year, 2,067 pounds; and the last year, 1,667 pounds.

Thus the three-year average showed 1,541 additional pounds of protein an acre were produced annually when nitrogen was applied at 100 pounds an acre after each cutting.

On a cost basis, the grower was able to raise this protein in the form of hay at a cost of 2.4 cents a pound, whereas if he had purchased the protein, he would have had to pay 7.5 cents a pound for it. **THE END**

The author is a soil scientist in charge of Coastal Bermuda grass investigations, Texas Research Foundation.

HAY HANDLING SYSTEM FOR STALL-TYPE BARNS, Conveyor and spreader move the hay uniformly over duct system of mow drier. A moving device hooked up to conveyor on hay track in top of barn moves conveyor back and forth over the mow to facilitate even distribution of the hay.

Few hands from field to cow

Not only do we have mechanical equipment for moving hay to the mow, but methods are now being worked out for getting it from the mow to the cow.

by Ralph Bowen

COMPLETE mechanization of hay handling from field to cow has been rather slow. Some delay has been caused by farmers working with two different systems, baling and chopping, since they abandoned long hay-making. Many farmers who changed to chopping discovered shortcomings. Some are:

1. Hay allowed to dry in the field loses about 20 to 30 per cent of its food value.
2. The sun and rain bleach the hay.
3. Drying in the field appears to make the stems sharp and woody.
4. Hay is dusty to handle in the barn.

Because of these problems, some changed to baling and started to try and improve the baled hay handling system. Others, step by step, have improved the shortcomings found with the chopped hay system.

Forage wagon a big help . . .

The forage wagon was developed first so the hay was moved, by various methods, to the back of the wagon. It was then raked out by hand. A lot of work was put into different models of this wagon until the present completely automatic unloader forage wagon was developed.

Many good commercially-built wagons are available today. The development and perfection of this wagon has improved the efficiency of the elevating equipment because it moves out to the elevator a steady ribbon or layer of hay. The hay is delivered to the side of the wagon so that it drops the chopped hay into the boot of the elevator. A heavy pick-up conveyor is no longer needed to move hay which falls or is raked out of the back of the wagon.

In modern self-unloader wagons, the hay is delivered from the side of the wagon near the front. The tractor operator can spot the wagon easily and the equipment is much easier to operate.

Most of these units are power take-off operative and the operator is close to clutch and controls so he can unload an even flow and keep the equipment operating at maximum capacity. A large load of chopped hay can be unloaded in five to six minutes.

The flight elevators are very efficient. They will move hay or ensilage to the conveyor and spreader much easier than do blower elevators.

The first man who hung a conveyor on the old hay track was a farmer in Washington County, Wisconsin. He developed his original system in 1948. His idea was to move the conveyor back and forth on the hay track so that 50 feet of conveyor will fill a barn 100 feet long.

Many people have worked on variations to the original spreader he developed. However, the one developed by another farmer in Wissin, which has become most popular, has crossbars similar to those on a television antenna which rotate in opposite directions at the end of the conveyor.

Farmers have learned that they can do a good job of spreading the hay in most any type of barn. By changing the length and spacing of the bars, hay can be spread further to one side than the other. It can be arched over duct or piled higher on sides.

The latest improvement which has come to our attention is the device for moving the conveyor and spreader slowly back and forth so the hay is spread evenly the full length of the barn. This makes it possible to spread an even layer of hay over the complete drying system so that the air flows through it more uniformly. There are no dense, compact areas or loose pockets for the air to flow through, especially if there are no beams or posts in the mow area.

The slatted floor hay drying system with two sets of doors [developed by the University of Wisconsin] is a good system to operate for most mow areas, if sufficient power is available to move the air through the mass of hay.

When the first 8 to 10 feet of hay are spread on this drying system, the lower doors are left open so that air goes out under the slatted floor and up through the hay. When the next 8 to 10 feet of hay are added, the doors in the lower part are closed and air is released through the top door so it does not need to be pushed through the dry hay.

Only two hand operations . . .

The sketch showing the hay handling system for stall-type barns shows that only two hand operations are needed:

1. Removing hay from the mow by hand. Research is being conducted on mechanical means of removing hay from mows.

The method developed by the agricultural experiment station at the University of Vermont appears to be working fairly well.

2. The other hand handling job is feeding. This job is being done on some farms with a gutter cleaner conveyor that moves hay and ensilage around in front of the cows.

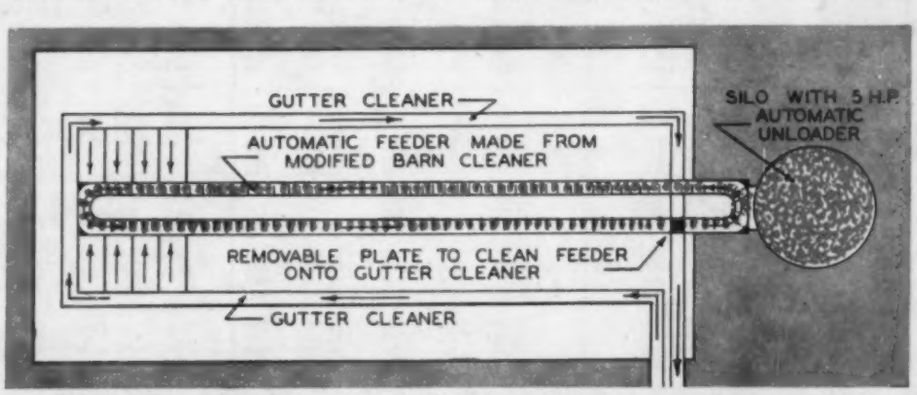
This conveyor does three chores fairly well:

1. Serves as a method of automatically feeding the ensilage.
2. Moves the chopped hay around so each cow has a chance to eat it.
3. Most farmers arrange a slide door so that coarse stems and material, which the cows do not clean up, are allowed to drop on the gutter cleaner at some place where this crosses over it. There are a number of farmers working with this type feeder and it appears to have many desirable features.

Many are considering operating this system with a time clock, so that animals can be fed more times each day. The feed mangers do not need to be deep because a small amount of feed is slowly moved in front of the herd for a predetermined time.

It takes many years of research and experimental work to mechanize, in a practical way, each of the many chores on a farm. Much of the equipment does more than one chore. This is desirable, if the moving and setup are not time consuming. **THE END**

The author is farm electrification engineer with the Wisconsin Electric Power Company, Wisconsin.


GUTTER CLEANER
AUTOMATIC FEEDER MADE FROM MODIFIED BARN CLEANER
SILO WITH 5 H.P. AUTOMATIC UNLOADER
REMOVABLE PLATE TO CLEAN FEEDER ONTO GUTTER CLEANER
GUTTER CLEANER

AUTOMATIC FEEDER can be used in stanchion barn, whether cows face in or out. In combination with silage unloader, the unit unloads and distributes silage to 50 cows in 8 minutes.

Here is the story of the
Judging Contest Cows

Here are their records:

Letter, name, classification	Age Y-M	Days milked	Times milked daily	Actual Production Lbs. milk	% test	Lbs. fat	M.E. Basis 305, 2x Lbs. milk	Lbs. fat
HOLSTEINS								
A—Carnation Sally Princess Hello	2-3	365	2	16,969	3.8	647	19,548	745
Good Plus	3-5	365	2	14,749	3.9	587	15,000	597
	4-8	365	3	27,690	3.8	1,061	24,921	955
B—Carnation Sally Mara Ormsby	2-3	365	2	11,796	3.8	452	13,588	521
Very Good	3-5	365	2	16,209	3.7	603	16,484	614
	**4-8	226	3	15,296		581		
C—Carnation Sally Lola Cindy	2-1	365	2	15,614	3.9	603	18,269	706
Very Good	3-4	365	2	17,014	3.9	655	17,304	667
	**4-6	188	3	12,876		481		
D—Carnation Sally Lola Skylark	2-5	365	3	15,234	3.7	563	15,843	586
Very Good	3-7	305	3	15,358	3.6	559	14,277	520
	4-8	365	3	24,680	3.9	963	22,212	867
	5-8	365	3	20,593	3.8	776	18,122	683
	**6-10	243	3	17,369		658		
AYRSHIRES								
A—Clover Crest Sybil P	2-7	305	2	9,709	4.0	392	11,641	470
B—Strathglass Lairds Hallie	2-8	305	2	9,078	4.1	368	10,785	437
	3-7	305	2	10,911	4.2	457	11,948	500
	5-8	305	2	10,360	4.0	409	10,412	411
C—Clover Crest War Sybil	2-2	305	2	10,865	4.1	443	13,733	560
	3-2	305	2	13,898	4.1	559	15,774	634
	4-2	305	2	14,770	4.1	569	15,568	631
	6-1	305	2	15,040	3.7	550	15,040	550
	7-2	305	2	16,774	4.0	662	16,808	663
D—Clover Crest Leader's Delight	2-3	305	2	10,214	4.0	412	12,763	515
	3-4	305	2	14,387	4.1	589	16,099	659
JERSEYS								
A—May Lad's Wallflower Excellent	*4-9	305	2	8,900	5.0	444		
B—Victoria Welcome Trilby	2-0	305	2	9,121	5.3	474	11,876	617
Excellent	3-6	305	2	10,548	5.7	606	11,582	665
	4-7	305	2	11,196	5.4	558	11,565	576
	5-8	365	2	11,849	5.2	613	11,971	572
	7-0	304	2	10,253	5.7	580	10,274	581
	8-5	305	2	9,411	5.2	494	9,778	513
	9-7	305	2	9,699	4.6	449	10,543	488
C—Pinn Blonde Oakland	3-0	305	2	7,438	5.5	416	8,391	480
Excellent	4-1	302	2	9,107	5.5	503	9,606	531
	*5-1	305	2	9,800	5.3	523		
D—Brampton Gareth Carom	2-3	305	2	8,090	5.6	453	10,153	568
Excellent	3-5	305	3	7,463	5.5	407	7,872	418
	**4-11	174	2	7,980	5.3	427		
BROWN SWISS								
A—Otter Creek's Ellen T.	2-2	365	2	14,337	4.7	677	17,427	823
Very Good	4-0	322	3	15,977	4.5	732	13,443	570
	5-0	310	2	14,012	3.9	615	12,587	544
B—Ivetta	2-0	322	2	12,520	3.9	489	15,431	603
Excellent	3-0	365	3	26,404	4.4	1,176	22,994	1,024
	5-0	305	3	24,051	4.4	1,061	20,836	936
	6-0	332	3	23,217	4.2	978	16,438	692
C—Active Acres Sylvianna H.	2-0	305	2	12,899	4.1	533	18,704	772
Excellent	2-11	305	3	18,059	4.2	772	18,804	804
	3-11	329	2	19,001	4.3	820	17,927	773
	5-11	365	2	19,721	3.9	772	16,931	663
	7-1	334	2	17,300	4.3	753	14,705	640
	9-0	344	3	23,039	4.4	1,009	16,475	722
D—Waukcowis Pride's Lucy	7-0	278	2	17,968	3.7	675	17,968	675
Excellent	9-0	300	3	19,968	4.3	862	16,799	725
GUERNSEYS								
A—Crockitt Prairie Master's Molly	3-11	365	2	14,335	6.0	851	12,946	773
Excellent	5-7	305	2	12,500	5.7	714	12,500	714
	6-8	305	2	11,949	5.7	678	11,949	678
B—Roetta Cherry's Bee	*3-0	317	2	10,931		535		
Excellent	*4-0	351	2	11,415		603		
	5-7	305	2	12,998	4.9	631	12,998	631
C—Twin Hart Gusta	2-1	365C	2	11,582	4.7	540	12,196	564
Excellent	3-4	305	2	10,750	4.7	503	11,717	548
	5-5	305	2	14,178	4.6	659	14,319	665
	6-7	305	2	13,502	4.4	595	13,502	595
D—Laurel Cliff B.I. Tillie	2-8	305C	3	10,508	5.0	522	11,457	569
Excellent	3-8	305	2	12,848	5.2	667	13,875	720
	4-10	365	2	17,354	5.4	937	15,193	820
	6-1	305	2	14,828	5.4	799	14,828	799

** In Progress
* DHIA

They have completed 60 official records, averaging 14,542 M. and 642 F. Of those classified, 11 are Excellent, 4 are Very Good, and 1 is Good Plus.

FOR several years it has been our custom to identify the cows used in our Hoard's Dairyman Cow Judging Contest. Even though the judges give no consideration to the production records, we believe you will be interested in seeing how these cows have produced. Incidentally, the judges make their official placings from copies of the magazine **(they do not see the cows or the original photographs).**

We sincerely congratulate the owners and their employees on the quality of cows they have provided. We have always made a sincere attempt to select cows that are a credit to their owners and their respective breeds. Obviously, it is not always possible to find herds that can furnish top cows in type and production, all showing in full bloom.

The judges' official placings and reasons will appear in the April 25 issue, while the winners will be announced in the May 10 issue.

Carnation Holsteins . . .

Our Holsteins come from Carnation Milk Farms, which this year starts its second 50-year period of breeding purebred Holstein cattle. Founded in 1910 by the late E. A. Stuart, founder of Carnation Company, the farm today consists of 1,150 acres, 450 of which is farm land. The balance is in the tree farm, roads, lakes, and river.

The Holstein herd consists of around 300 head. Sales of cattle have been made to every state in the Union, every Province in Canada, and to at least 41 other countries. Carnation cows have made nearly 20 per cent of the 1,000-pound Holstein fat records and 68 have produced records of more than 30,000 pounds of milk.

Last August the herd was classified for type and the 146 females in production averaged 86, including 21 Excellent, 77 Very Good, and 48 Good Plus.

All four cows in our contest class are sired by the well-known Carnation Madcap Butter Boy, that is classified Excellent.

Originally founded for the purpose of breeding and supplying the best possible bulls to dairymen supplying milk for Carnation's evaporated milk plants, it later developed that the farm served as an experimental farm for the company, as well as a high class breeding herd. Since 1929, when Carnation purchased Albers Milling Company, all of Albers' live animal research work has been conducted at the farm. The operation also includes a registered Polled Hereford breeding herd which numbers just over 300 head.

New York Ayrshires . . .

Our Ayrshire class comes from the farmer-breeder herd of Marshall Cheesman, who has spent his entire lifetime on his Clover Crest Farm, Ellenburg Depot, New York. He got his first Ayrshire in 1912 and the herd has been in the Ayrshire limelight many times since. Among other accomplishments, he has won the Ayrshire Breeders' Association French Trophy six times. From 1953-59, his herd averaged 10,537 pounds milk, 447 pounds butterfat.

In 1955, Cheesman's herd was nationally recognized when Clover Crest Roberta completed her second class-leading, 305-day, 2x, HIR record with 17,601 pounds milk, 966 pounds fat, which at that time was the highest for butterfat ever made by a cow on 305-day, twice daily milking, regardless of breed, begun at less than 5 years of age.

The 190-acre farm is operated by Marshall and his only son, Winford, who has his own Ayrshire unit in the herd. Altogether they have some 100 head. Some of the bulls that have contributed much to the Clover Crest herd include Whitpain Man O'War, Toll Gate Sir Robert, Adrossan Sybil's Chieftain, and Greenrange Advanced Design.

Heaven Hill Jerseys . . .

Our Jerseys come from Heaven Hill Farm, Lake Placid, N. Y., the highest arable agricultural land in the country. It is surrounded by 18 of the highest peaks in the Adirondack Mountains. Due to the very short growing season, cows go to the barn early in the fall and never feel the ground again until late May or early June.

Mr. and Mrs. Henry Uihlein, who make their home right on the farm, established the herd in 1942 and early determined to do all they could on the matter of breeding for top type. The classification average of the herd is 89.75 per cent on 60 head.

During the 1960 show season, their dairy herd was undefeated at the All American, Royal Winter Fair, New York State Fair, National Dairy Cattle Congress, International Dairy Show, and Eastern States Exposition. They owned either the grand champion, reserve grand, or junior champion female at all these shows. They owned the sires of both the senior and junior get of sires at this year's All American. All four of

the contest cows were prominent winners at one or more major shows.

White Cloud Brown Swiss . . .

Just five years ago, Henry C. Woods, Jr., English professor at Princeton University, began to assemble a registered Brown Swiss herd. During that short span the herd already has had two all-breed production champions. In addition, on official test, 27 cows in the herd have completed records of more than 18,000 pounds milk, including 5 over 25,000 and 2 over 30,000.

Under the management of Al Bainbridge, the 114-acre farm produces most of the hay for the 55 head, but all grain is purchased. Of the animals classified, there are 14 Excellent and 17 are Very Good. The past two years White Cloud has shown the grand champion at the New Jersey State Fair.

Our "B" cow in the contest class is Ivetta, that in 1958 completed a record of 26,404 pounds of milk, 1,176 pounds of fat in 365 days on 3x, that was high for all junior 3-year-olds regardless of breed. The following year the farm received more national recognition when Letha Irene Pride was acclaimed all-breed butterfat champion with her record of 1,733 pounds of fat in 365 days on 3x. This record has since been broken by an Ohio Holstein.

Guernseys from Woodacres . . .

Our Guernsey class comes from the well-known Woodacres herd, Princeton, New Jersey, owned by Atherton W. Hobler, New York advertising executive. The 555-acre farm, established in 1939, has been a line-bred Steadfast-Levity herd.

In 1955, after having been Premier Breeder for three straight years at the strong New Jersey and Pennsylvania Shows, the herd was dispersed except for all females under 15 months of age. Each year some top cows have been added and today the herd numbers about 190 head. Since 1954, Merton B. Sowerby has been manager.

Known for its accomplishments in the show ring as well as among production leaders, in 1960, 72 records averaged 11,722 milk, 583 fat, when converted to a mature equivalent basis. In March of this year, the herd was classified with an average of 86.0, including 12 Excellent, 43 Very Good, and 23 Desirable.

Included in the herd is the well-known Senecaside Meryl, that recently was named All-American aged cow for the fourth straight year. "A" in our contest class was the All-American 4-year-old in 1957, won the best uddered class at the National in 1958, and was a member of the winning dairy herd at the National in 1957, 1958, and 1959. **THE END**

Secret of face fly rearing discovered

Year-round research to find ways of controlling the face fly, a pest that is rapidly becoming a serious menace to livestock in this country, has been made possible by development of a laboratory method of rearing these flies, according to the U.S.D.A.

John H. Fales and his co-workers have succeeded in propagating the insects through eight generations in an effort to build a colony large enough to permit experiments aimed at development of suitable control measures.

The face fly, *Musca autumnalis*, looks very much like a house fly. It is common in Europe and Asia and was first found in the United States (New York State) in 1953. When present in large numbers, this livestock pest reduces milk production in dairy cattle and holds down weight gains in meat animals by constantly attacking the eyes of the animals as they graze.

Keys to laboratory propagation of this insect, the entomologists found, are proper diet and light. The adult flies are now being fed a highly nutritious diet of skim milk, sugar, pollen, raw beef, malt extract, brain-heart infusion, mucoproteins from animal intestines, and fresh cow manure. One by one these items are being omitted from the diet in order to determine which of them are essential dietary requirements. Sun lamps and daylight fluorescent lights are used to simulate natural sunlight needed to stimulate egg laying.

In studying the habits, behavior, and life cycle of these insects, the scientists have discovered that the face fly and house fly complete their life cycles in the same length of time. However, the face fly spends less time in the larval stage and more time in the pupal stage of growth than does the house fly.

The scientists also confirmed that face fly females will lay their eggs only in fresh cow manure. They would not deposit eggs in a synthetic medium used for rearing house flies. The face fly also differs from the house fly by laying eggs under the surface rather than on the surface of the medium used.

The face fly caused no great concern in the United States until 1959. By that time it had spread to several eastern states. It now occurs in nearly all states east of the Mississippi River, north of and including Tennessee and North Carolina, and west of the Mississippi River in Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota.

Usually congregating on the faces of cattle and horses, the female flies feed on secretions formed around the eyelids or on mucous and saliva from the nostrils and mouth. The flies continually attack the open eyes of older animals, and the entire body of new-born calves.

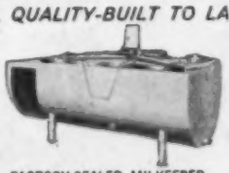
Early vaccination is the best way to protect calves against blackleg.

TENS OF THOUSANDS INSTALLED...

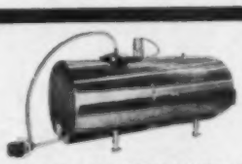
MILKEEPER®

BULK FARM COOLING TANKS

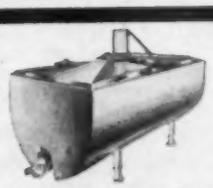
MORE MODELS TO CHOOSE FROM — ALL QUALITY-BUILT TO LAST!



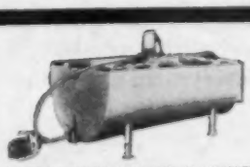
FACTORY-SEALED MILKEEPER VINYL PLASTIC COVERED



STAINLESS STEEL MILKEEPER VACUUM TANK
Shown with CIP KleenKeeper Kit (Optional)



STAINLESS STEEL MILKEEPER REMOTE STYLE



VINYL PLASTIC COVERED MILKEEPER REMOTE STYLE
Shown with CIP KleenKeeper Kit (Optional)

Mail Coupon Today for Bulletin C-1-100 Latest Information on CP MilKeepers.

Your Surest Proof of The Best Bulk Farm Tank that anybody can Buy — or Make

BACKED BY:

One of the World's Largest Manufacturers of Dairy Processing Equipment

LET HIM HELP YOU

THE *Creamery Package*® MFG. COMPANY
General and Export Offices: 1243 W. Washington Blvd. Chicago 7, Illinois
Branches in 23 Principal Cities
CREAMERY PACKAGE MFG. COMPANY OF CANADA, LTD.
267 King St., West, Toronto 2B, Ontario

THE *Creamery Package*® MFG. COMPANY
1243 W. Washington Blvd., Chicago 7, Illinois, Dept. HD-461
Please send my copy of MilKeeper, Bulletin C-1-100.
Name_____
Address or RFD_____
City_____ State_____

THEY WORK HARDER BECAUSE THEY RIDE EASIER!

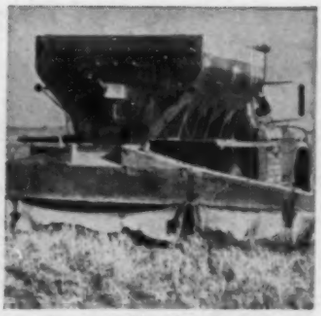
Shown here are the Corvair 95 Rampside and a Chevrolet Fleetside—both right at home on a farm.

■ **WORK-PROVED CHEVROLETS** Whatever the job—hauling perishables, livestock, makes no difference what—Chevy IFS (Independent Front Suspension) means easier going for the driver and the load. Here's a truck ride that protects fragile cargo and lets you get more work done in a day. And a Chevy IFS truck costs less to maintain because there's less tire abuse and wear and tear on the sheet metal. Put a Chevy IFS truck to work for you (pickup, stake, whatever you need) and you'll see what we mean!

■ **REAR-ENGINED CORVAIR 95's** They carry up to 1,900 lbs. on a nimble 95″ wheelbase and handle like no truck you've ever driven before! Single unit body-frame is built to take it. 4-wheel independent suspension soaks up road shock and vibration. Air-cooled rear engine never uses water or antifreeze. Everything about them spells economy and long life!... Chevrolet Division of General Motors, Detroit 2, Mich.

CHEVY IFS TRUCKS

FRONT INDEPENDENT SUSPENSION



LIQUID OR DRY? Both fertilizers come in a combination of nitrogen, phosphorus, and potassium that adequately meets soil test requirements.

Liquid vs. dry fertilizer

Two-year Illinois tests show that liquid fertilizer increased corn yields just as much as did dry fertilizer. It's up to you to decide which meets your needs.

by A. L. Lang and C. K. Martin

COMPARATIVE fertilizer tests were made in 1958 and 1959 at two locations near Elwood, Ill., and at three locations near Urbana-Champaign on soils that were silty or silty clay loam.

In the trials of 1958, a 12-6-6 grade of each dry and liquid fertilizer was compared at two rates (800 and 1,600 pounds per acre). Both materials were broadcast and plowed down ahead of corn.

On a portion of the broadcast areas, 100 pounds per acre of an 8-16-0 grade of each form was banded beside the corn at planting time. The effects were determined on each of two populations (12,000 and 16,000 plants per acre).

Similar studies were made in 1959 except a 15-5-5 grade was used and the materials were broadcast after plowing and disked in ahead of corn. The rates were 600 and 1,200 pounds an acre. A 6-18-6 grade was used for banding in 1959 at rates of 100 and 300 pounds per acre.

These rates were banded on areas having received no broadcast applications, as well as on the broadcast areas. Corn plant population rates in the 1959 studies were 16,000 and 22,000 plants per acre.

Fertilizer effects . . .

Fertilizer increased corn yields 17½ bushels per acre as an average of all the experiments. Liquid mixes produced on the average 19 bushels an acre increase and dry mixes produced 16 bushels an acre increase. The three bushels difference between the two sources of fertilizer were not statistically significant.

Banded fertilizer boosted the early growth of corn in both years. However, corn yields were not increased over the broadcast treatments by the band placement. There was no measurable difference between the effect of liquid and dry banded fertilizer on the early growth of the corn plants.

Effects of population rates . . .

Increasing the population rate from 12,000 to 16,000 plants per acre increased corn yields by 12 bushels an acre in 1958. This was an average increase for all three locations and not related to rates, kinds, or placement of fertilizer.

Raising the population rates from 16,000 to 22,000 plants per acre in 1959 did not further raise the corn yields.

Liquid fertilizers offer the user another source of plant nutrients with both advantages and disadvantages. Their effectiveness in increasing corn yields in these experiments was just as good, but no better than dry sources.

Convenience of handling and applying, as well as price per unit of plant nutrients are the factors the individual should use in deciding between the use of liquid or dry sources of fertilizer. The table below shows average corn yields under various fertilizer treatments.

Treatment	Bushels of corn per acre 1958	1959	Ave.
No treatment	92	70	81
Liquid broadcast	112	80	96
Dry broadcast	110	76	93
Liquid starter	.....	78	....
Dry starter	.....	77	....
Liquid broadcast, liquid starter	112	89	100
Dry broadcast, dry starter	112	82	97
Liquid broadcast, dry starter	113	....	....
Dry broadcast, liquid starter	108	....	....

The authors are members of the agronomy staff at the University of Illinois.

N.Y.A.B.C. Sale averages $714

Twenty-nine registered Holsteins sold for a total of $20,710 at the Third N.Y.A.B.C. All-Star Sale held March 1, 1961 at Earlville, New York for an average of $714 per animal. The sale featured females sired by bulls used in regular service at New York Artificial Breeders' Cooperative, Inc., of Ithaca and was conducted before an audience of 900 people by members of the R. Austin Backus sales organization.

Top selling cow at $1,020 was Hickory Shade Beauty, a 5-year-old daughter of Woodside Wayne Jolie with 654 pounds fat at 3 years. She was consigned by James C. Earl, Unadilla and was one of five animals purchased by Raymond Higgins and Sons, Burlington Flats.

The $714 average is the highest in the nation for a 1961 artificial breeding stud sale. Twenty-four cows, 3 to 8 years of age averaged $731.88 and five first-calf heifers averaged $629.

Save 4 hours haying time every 60 minutes

with the NEW
HESSTON 240 Windrower-Conditioner
...and get better quality hay

Unbelievable—but true! One man and a 14-foot Hesston 240 Windrower-Conditioner will actually cut, condition, and windrow five times faster than a conventional tractor-mower, conditioner, and rake.* Whether you harvest 50 or 5,000 acres, you'll save on manpower, and hours in the field. You save nearly 3 miles of field travel per acre with a 14-foot Hesston compared with a 7′ mower, 7′ conditioner, and 8′ rake. It replaces three to five machines, saving 50% on equipment costs and reducing manpower requirements as much as 75%.

Windrowed hay gives you 23.4% dry weight yield increase* and saves those tender, nutritious tips and leaves that are lost by mowing and raking.

Ideal for a Wide Variety of Crops!

Fifteen-minute detachability of the Conditioner gives you crop versatility with the 240 for cutting and windrowing small grains, beans, peas, seed crops, mint, lentils, and many other crops. You cut when first grain is ripe, reducing crop loss due to lodging, shattering, storms, and insect damage. Hesston windrows lay in an airy criss-cross pattern for easy pick-up with your combine.

* Write for Free Booklet, "8 Dimensions to Profits by Windrowing"

there's nothing like a Hesston!

HESSTON Manufacturing Company, Inc.
602 King Street • Hesston, Kan.

Please send me literature and name of my distributor for the Hesston 240 Windrower-Conditioner.
I am a Farmer____ Dealer____ Student____.

NAME_____

ADDRESS_____

TOWN_____ STATE_____

HS 21-1160

More partners for the New Generation of Power

Baling without a backache—the Bale Ejector does the loading.

Throw a Haymaker at Hard Work... *load and store bales AUTOMATICALLY with John Deere's One-Man Haying System*

Conventional, or "straight" haying, is hard work. But with the John Deere One-Man Way of Making Hay you'll throw a "Sunday punch" at back-breaking work—take the easiest, fastest method to cost-cutting haymaking you've ever had on your farm.

Automation in the field

The first key to easier haying is a John Deere 14-T or 214-T Twine-Tie Baler with Bale Ejector. The Ejector tosses half-sized, or slightly larger, bales into wagons *automatically*. You don't need men on wagons or bale pickup men—one man handles both baling and loading from the tractor seat. What's more, the Ejector costs, in most cases, less than a hired hand's salary for a single haying season.

Automation at the barn

The second key to easier haying is a John Deere Portable Elevator-Barn Bale Conveyor combination. One man unloads the half-sized bales and the elevator and conveyor handle the rest of the storing job *automatically*.

Just how much easier can haying be? Get the full story on the One-Man Haying System from your John Deere dealer. Ask him about the liberal terms of the John Deere Credit Plan, too. Write to the address below for free literature.

Here's a 300 Portable Elevator-200 Bale Conveyor combination.

JOHN DEERE design, dependability, and dealers **MAKE THE DIFFERENCE**

JOHN DEERE • 3300 RIVER DRIVE, MOLINE, ILLINOIS

Why soil tests vary

Do your soil tests vary more than you would expect from the nature of your fields and past treatment? Here are some causes and how you can avoid them.

by Joseph L. Keogh

COMPOSITE SAMPLES must be taken from 10 or more places in a 15-acre field. Avoid those areas having excess lime, fertilizer, manure, or other humus.

THE man making a soil test has to assume that a soil sample was taken properly. He is often confronted with considerable variation in the results on a group of samples from one farm. A completely filled out information sheet showing different types of land and liming and fertilizer practices may explain it. But often, he has to question the sampling technique.

All of the soil testing laboratories have a set of directions for taking samples which most of you have read before sampling. These instructions include how to divide a field, number of borings or samples to be taken, and areas to avoid.

I believe a dairy farmer has an even tougher problem in taking a representative sample. He should consider that in his sampling he should do a more complete job. That is, he should sample smaller areas and take more borings for each area.

Fertile pockets . . .

Taking an accurate soil sample will become more difficult as dairymen go to a more intensive farming operation, that is using less land to support more livestock. Increased use of lime and fertilizer demands more care in sampling, particularly in avoiding where hoppers are normally filled and areas that are often crossed several times during the operation.

If the lime and fertilizer is well mixed with the soil, there should be no problem, but many of our permanent pastures are not broken, and lime and fertilizer are near the surface.

These problems caused by use of commercial fertilizer are not nearly as great, however, as those caused by use of manure. Whether it is just droppings or that spread with a spreader, distribution is uneven and "hot spots," or unusually high testing spots show up. Care should be exercised in avoiding these spots, which are often indicated by rank plant growth, where the livestock avoid grazing.

Another help is to take a large number of borings from the area to get a better picture of field fertility. The soil test then represents more of an average of the fertility level of the entire field.

From experience we all know that it is easier to take soil samples when the soil is at a moisture level that is just right to plow. However, that moisture level seldom occurs when we have the time to take samples. If the soil is dry, it is possible to sample, but just a more difficult job. A little variation in sampling tools and technique will take care of it.

Moisture a problem . . .

When the soil is too wet, several problems arise. One results when we avoid wet areas which cannot be easily sampled. Another problem is caused by walking along old rows and sampling the old seed bed. Both of these should be avoided, the first, because it would not give an average level of fertility as mentioned earlier. In the second case (examples of which we find show up regularly during our wet seasons), sampling the past year's fertilizer band results in abnormally high soil tests.

If these two factors can be avoided, sampling could be done while the soil is wet. A few simple precautions should be taken. Before mixing the soil and taking out a composite sample to be sent to the laboratory, allow it to dry. It would not have to be completely dry, but dry enough for a good mix. While drying, of course, be cautious of contamination by feeds, fertilizer, or other materials.

Avoid heating samples . . .

A word of caution about drying. Avoid placing the soil close to any source of heat. Dry at room temperature. Placing samples on radiators, close to stoves, or in the oven can and does have very marked effects on soil test results. We never write a recommendation if there is indication heat has been used.

For the dairymen who have found soil tests a method of evaluating one of their basic work units (the soil), they have a problem of getting a good soil sample, however, not a serious one, if they will take the time to consider the problem while sampling. Then, if they take a good sample and handle it properly, it will simplify one of the big management problems—when, how much, and what kind of lime and fertilizer to use.

The author is assistant agronomist with the University of Arkansas.

Here's **PEACE OF MIND** in your fight against MASTITIS

Gargon®

(Squibb Thiostrepton-Neomycin in Plastibase®)

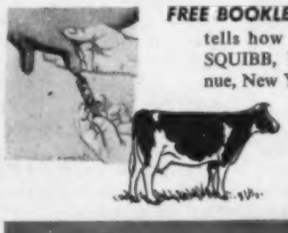
You can use Gargon with complete faith that it will clear up the infection fast with absolutely no risk of residues in the milk you sell, providing you use as directed. Why? Gargon contains the exclusive Squibb antibiotic, thiostrepton, plus neomycin—a formula made only by Squibb, a name you can trust.

1. Instill Gargon in the infected quarter. Trust Gargon to attack the 9 common kinds of mastitis germs, even hard-to-kill strains of staphylococci. Gargon even attacks strains of bacteria that have become resistant to older types of treatments.

2. Withhold milk from treated quarter for 72 hours. (Milk from untreated quarters can be fed to calves and other stock. You don't waste milk.)

3. Milk from treated quarter is now absolutely residue-free. With Gargon, you know ahead of time exactly when you can send milk to market with peace of mind.

START YOUR GARGON PEACE OF MIND PROGRAM TODAY. Gargon clears up mastitis with a greater range of germ-killing power than the 3 broad spectrum antibiotics, penicillin, the triple-sulfas, streptomycin, or neomycin used alone. Gargon eliminates the residue problem. Get peace of mind—with GARGON!



FREE BOOKLET

tells how to prevent and treat mastitis. Write SQUIBB, *Veterinary Department*, 745 Fifth Avenue, New York 22, N. Y.

SQUIBB DIVISION Olin

GARGON® and PLASTIBASE® are Squibb trademarks

SQUIBB - A NAME YOU CAN TRUST

EDITORIAL COMMENT

POWER OF A SALESMAN

WE VISITED in a county recently where we saw more good hay and more high producing herds than we have seen in almost any other county in the United States. A great share of the credit for the achievement in this county goes to a sincere, able, and competent salesman of hay drying systems. Never before have we been so thoroughly impressed with the power for good that was demonstrated by this man.

All of us have varying degrees of sales resistance. It's a good thing we have or we would be up to our ears in unwanted merchandise. But we must admit, too, that a good salesman of a reliable product should be considered a friend, not a trespasser. Whether we buy or not, he brings information and new ideas as well as new products. Without him, surely, our rate of progress in dairying, our increased standard of living, would have evolved much more slowly.

CAREFUL OF THAT GRAZING!

A READER sends us a newspaper clipping describing two possible farm programs suggested by the National Corn Growers' Association. One of the proposals concerns us very much because of its possible effect on dairying. This proposal would prohibit a farmer from planting more than two-thirds of his total acreage to crops labeled as "intensive" by the Secretary of Agriculture. The balance would be planted to "nonintensive" crops, pastured, or planted to hay.

This type of a farm program might help solve the corn problem but it has the potential for raising havoc with livestock farmers. Those "nonintensive" crops of pasture or hay aren't going to remain idle or unharvested. They are going to be fed to dairy cattle, beef cattle, and sheep. The corn growers may like the prospect of more ruminants as prospective consumers of corn and feed grains. But the livestock producer wants no part of a program which encourages greater numbers of dairy cattle, beef cattle, and sheep. This is the road to sharply lower prices.

We thought this type of a proposal was thoroughly discredited several years ago. When the Soil Bank was initiated, responsible leaders quickly saw the danger of allowing diverted acres to be harvested for forage. It was unwise and indefensible then as it is now.

"SEVEN PILLARS OF WISDOM"

ANYONE who reads the papers knows that the plywood industry has been in and out of financial trouble for several years. In spite of great increases in efficiency, prices have fluctuated wildly. As a matter of fact, plywood is one of the few building materials that costs less today than it did in 1950.

Actually, plywood manufacturers have tended to market their products much like we, as dairymen, do. They have produced, often without regard for the available demand. Flooded markets have meant sharp drops in prices.

Recently manufacturers took a long look at their business and sponsored a series of seminars, entitled "Seven Pillars of Wisdom for an Orderly Marketing System for Douglas Fir Plywood." The seven pillars were market statistics, advertising and promotion, production control, storage, selecting proper marketing channels, price policy, and discount policy.

Whether the educational program is responsible or not, quarter-inch sanded plywood prices in late December were up 13 per cent over the August level. The vice-president of one large company says, "I give a lot of credit for higher prices to our marketing seminars getting people in the proper frame of mind so mills subsequently curtailed their output individually to match their order files."

Here is but one more example of the wisdom of producing for a market rather than regardless of the market. It is a lesson we must learn in dairy farming.

PIONEERS WERE YOUNG MEN

AT THE recent annual meeting of the Twin City Milk Producers Association (Minnesota), President Walter A. Larson reflected on the 44-year history of the large dairy cooperative and noted that four of the pioneers of the group had passed away during the previous year. He went on to point out:

". . . many of the men who were so active in the pioneer work of organizing the Twin City Milk Producers Association, and who were responsible for its successful operation during its early years, were young men. They must have been young men then or they would not have lived to guide its destiny and watch its growth over a period of 40 years and more.

"Their task was a difficult one, not only because they were young and perhaps inexperienced, but because there were no maps to guide them — no patterns to follow. They had many obstacles thrown in their path. It was even considered a crime for farmers to join together and bargain collectively. New laws had to be drafted and passed at both the state and federal level in the face of terrific opposition. These men knew what they wanted, however, and they had the strength, the vigor, and the stamina of youth to go after it."

Americanism implies loyalty to the Founding Fathers, but the highest loyalty consists in meeting the issues of our generation with the same intelligence and sense of responsibility with which they met the issues of their generation.
—Glenn Frank

Dairy and farm groups today should consider seriously the implications of Walter Larson's observation. We do not urge the election of young directors for the sake of youth alone. But it is good judgment and good management to elect directors from all age groups. We need the wisdom of experience, the mature responsibility of middle age, and the vigor of youth. The young man has a greater stake in the future of a dairy cooperative, because his life is largely ahead of him. He is interested in the future, his own future, as it is influenced by the services of the cooperative.

From another point of view, it is simply good management to have young men in training for later, larger responsibilities.

ESTIMATING—DANGEROUS GAME

THROUGHOUT the United States a group of farmers report regularly to the Department of Agriculture what is going on in their farm operations. The department uses these reports to estimate production of the respective farm commodities and such things as livestock numbers on farms. Of course, every five years an agricultural census provides a more accurate livestock count. From these base census figures estimates are projected.

It is now clear the estimates made by the department during the past five years have been considerably off. Revised figures have been issued. Among them are the following—

— instead of about 105 million head of cattle on farms January 1, as forecast, there are only 97 million.

— the average number of milk cows estimated for 1959 has been revised downward by 7 per cent.

— total milk production for 1960 has been revised downward by 2.6 billion pounds.

One encouraging part of the revised figures is that the estimated quantity of milk marketed is expected to show only about a ½ per cent reduction under previous estimates.

But the number and size of these revisions is deeply disturbing. The estimates are used by farmers in their farm planning and operations. Economists use these figures to project future price and profit opportunities. When estimates get this far out of line our confidence is shaken in the reliability of these reports we assume to be relatively accurate.

We assume department officials are as concerned about these inaccurate estimates as are we. The record of the past five years clearly indicates the necessity of an exhaustive investigation into the causes for the errors and the institution of corrective procedures.

Fortunately, the revisions contained exceptionally good news for us as dairymen. We have wondered, for many months, why the beef market has not dropped more sharply. Of course, a drop in beef prices is a forerunner of a marked upsurge in milk production, accumulated surpluses, followed by lower dairy prices. We have been more concerned about beef cattle numbers than perhaps anything else in the agricultural picture because they have so much to do with our dairy income.

Beef cattle numbers are increasing but at nowhere near the rate previously estimated. This is undoubtedly the reason why there has been only the general sag in beef prices and not the precipitous drop which we expected. Good news in the beef industry is good news for the dairy industry, too.

76 years ago...

Milk immediately after cleansing the udder. This advice is in accord with the physiological law that manipulation of the udder will start the flow of milk. When once started, the milk should be drawn at once, or injury to the power of milk secretion will ensue.

W. D. Hoard

Questions from Our Readers

Offset discs

Recently I became interested in the heavy-duty, offset disc. I am looking for some implement which will replace the plow for preparing the ground in planting corn and soybeans. I understand these discs are used on the prairies of southern Minnesota for this purpose. Could you give me some information that would be of help to me? Also, what size disc could be pulled by a 40- to 44-horsepower tractor?

Iowa **W.C.B.**

There are three implements which might be referred to as disc plows. The first implement is a conventional plow frame on which are mounted large disc moldboards. These disc plows are made in 2-, 3-, 4-, and usually not larger than 5-bottom sizes.

The second implement is the one-way or wheatland-type disc plow. This is a tool which works very successfully in dry soils. It characteristically leaves the trash on the surface to prevent soil blowing in dry areas. The mulch is also helpful for soil conservation.

The third type of implement to which I believe you refer is the regular offset disc harrow that is designed for orchard and vineyard use. There are a number of manufacturers of this implement. While the first two disc-type plows are wheel-mounted, this one operates the same as any other disc, except that it has only two gangs. One is set to throw to the right, the other to the left, the idea being that you get a double discing action and a relatively level surface. Since it is used in irrigated areas, the level surface is a must.

I would imagine that these implements would work in a fairly satisfactory manner under Iowa conditions. We tried the one-way plow for preparing oat land several years ago. It promptly filled up solid with mud and was never used much afterward. Your dealer can recommend a size of offset disc for your 44-horsepower tractor. I would think that an 8-foot size would be a reasonable load.

Practically all of the implement manufacturers build some kind of offset disc harrow, but do not refer to it as a plow.

—DALE O. HULL
Iowa State University

Rose bush sick?

We have a Tree of China rose that looks sick. A gummy, syrupy liquid runs from the crotch down the limb. Is this a disease, or could it be an insect that is causing the trouble?

Wisconsin **T.E.S.**

There are two possible causes. One is that there has been a heavy wind, or injury that has sort of split this "crotch," and the wound is exuding sap.

If the branches are of considerable size and fairly heavy, you might take some adhesive tape and tape the crotch together.

It would be advisable to encourage some additional lateral branching below this crotch so eventually blooms would appear on the lateral branches and this injured portion could be removed.

The other possibility is that there is an insect working directly in the crotch of the plant. Very often, crotches of limbs and trees are favorable places for insects to lay eggs and then when the young grub hatches, he burrows around under the bark.

Take a small pen-knife and dig carefully in the crotch to see whether there is any evidence of insect debris or damage. If there is, dig out the insect and then tape the wound as we mentioned earlier.

In either case it is advisable to encourage some lateral branching.

—E. P. SYLWESTER
Iowa State University

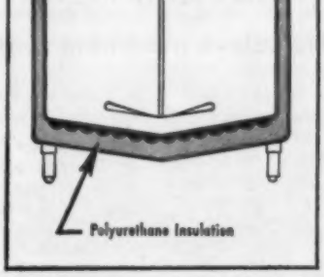
ED . . . ***and EMMA***

"That was easy to start . . . just a little push down the hill . . ."

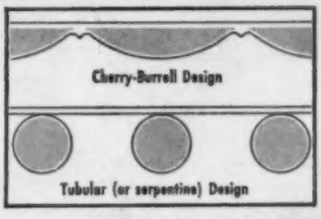
". . . runs nice without a driver, too!"

CONSTRUCTED TO INSURE ACCURATE CALIBRATION

The most modern development in insulation — polyurethane — is one of the reasons for this tank's accurate calibration (and the resulting payment for *all* your product). The polyurethane is foamed into the tank and hardens into an indestructible bond with the inner liner and outer jacket. The two-inch minimum thickness of solid polyurethane rigidly resists compression; keeps the tank from bulging even slightly!



A heavy gauge stainless steel, single shell liner and outer jacket, and the tank's V-bottom also contribute to the strength and stability — the accurate calibration — you get with Cherry-Burrell's direct expansion tanks.



THERE ARE NO COOLING "DEAD SPOTS" IN CHERRY-BURRELL TANKS

Compare Cherry-Burrell's *single-pass* channels with the less effective tubular type. Tubular channels leave 'dead spots' between coils, *and* ineffectively cooled product. Only Cherry-Burrell tanks have all-welded, *single-pass* Freon systems. This is another reason why Cherry-Burrell cools milk more rapidly at lower cost. The tank's V-bottom also allows more product to be exposed to coolant to enhance cooling.

As you can see, your product is cooled more effectively by Cherry-Burrell Direct Expansion Bulk Milk Tanks. And you get paid for every drop of your milk — because of the Cherry-Burrell tank's accurate calibration.

A Cherry-Burrell dealer will be glad to explain these, and many other, advantages. See him today.

CHERRY-BURRELL CORPORATION
CEDAR RAPIDS, IOWA

Control wild garlic

Springtime is the time that wild garlic or wild onion causes most concern to dairymen. It is a perennial plant that likes to grow in cool weather, propagating from aerial bulblets as well as from sets or underground bulbs.

Generally, it starts growth in the fall following fall rains. Sometimes it may stay green all winter. In any event, it renews its growth in late winter or early spring.

Keeping the dairy herd out of infested pastures and fields during the early spring months may be necessary to prevent tainted milk. Remove the cows from the pasture a few hours before milking.

Spraying with 2,4-D in permanent pastures appears to be the most effective and practical method of control. To be most effective, it must be done early (March), before the new underground bulbs form. One and one-half quarts of standard 40 per cent, 2,4-D ester in 10 gallons of water per acre is recommended. Livestock should be kept out of newly-treated areas for a few days.

Unfortunately, since such treatments also destroy legume plants, spraying with 2,4-D may not be practical. There is also the thought that in a well-fertilized pasture where crop plants grow vigorously, garlic will not thrive as well as on poorer land where it has less competition. Therefore, good pasture management should not be overlooked in coping with wild garlic.

In rotation pastures, an attempt should be made to clean up garlic infestations before seeding down to pasture crops. For areas not in crop, as much as 3 quarts of 2,4-D per acre may be used. Spraying can be done in corn or soybean stubble. As it usually takes more than one spraying to kill garlic, several sprayings should be made in early spring for 2 or 3 years.

Winter or early spring plowing will prevent the formation of new underground bulbs. If top growth is turned and no new growth permitted, the plant cannot reproduce by bulbs. March and April plowing followed by a disking or two in April and May will reduce a stand.

—OLIVER E. LEE

Brown Swiss dispersal averages $669

The Fullpail Farm Brown Swiss dispersal, held at Elkhorn, Wis., January 21, saw 38 head sell for an average of $669.

Owned by Ernie Kueffner and Family, the dispersal attracted buyers from nine states. Largest buyer was Betty and Ralph Woodbridge, Jr., Oakdale, Calif., who purchased 5 head for $5,675.

Top-selling individual was a daughter of Lee's Hill Masterpiece M, Fullpail Mistress Jeany, purchased by Woodbridge for $1,900. Second high-selling animal was a young bull, purchased by Charles Franken of Shell Rock, Iowa, for $1,100.

Inasmuch as this was the first purebred dispersal held in the new Elkhorn sale pavilion, a heifer calf was sold and resold, the proceeds contributed to the cost of construction of the pavilion. First purchased at $250 by Norman Magnussen, she was purchased the second time by John Lust and Family, Iola, Kans., for $220.

The sale was managed by Norman Magnussen, Brown Swiss Sales Service, Lake Mills, Wis.

295 bushels from an acre

The famed "Ratliff Acre" in Prentiss County, Mississippi, has produced what is regarded as the world's record corn yield for 1960. An even 295 bushels were harvested from the same measured acre on which record-holder, Lamar Ratliff, produced 304.38 bushels in 1955. This year's crop was grown by Paul and Lindon Ratliff, father and brother of Lamar.

They irrigated their field 10 times during a 135-day drouth which severely burned neighboring fields. An amazing 2,500 pounds of fertilizer were applied before and during the growing season.

They broadcast and plowed under 1,000 pounds of mixed fertilizer and 500 pounds of ammonium nitrate before planting. An additional 500 pounds of mixed fertilizer and 200 pounds of nitrate were applied under the corn at a depth of 24 inches.

The field was planted on April 20, in 30-inch rows, with kernels spaced about 8 inches to the row, giving a final stalk population of around 25,000. The corn was cultivated twice and side-dressed with 300 pounds of ammonium nitrate at the last cultivation.

Field measurement and weighing were handled by Prentiss County Agent, W. T. Smith and Assistant County Agent, J. W. Archer, both of Booneville, Miss. The yield figures were officially released by Mississippi State College.

If the mower seems to drag in the field, it may not be aligned properly to the tractor.

Maximum protection right from birth!

SULFASTREP Boluses give calves maximum protection against scours

Don't give costly calf scours a chance to start! Protect your investment by starting your newborn animals on SULFASTREP... the easy-to-use 3-way drug from Merck that helps knock out intestinal infection *fast!* Just 1 or 2 boluses a day, for 3 to 5 days, is all it takes... *even in herds in which scours is a persistent problem.*

Triple-Barreled protection! SULFASTREP contains *three* powerful drugs with a wide range of antibacterial activity. Two drugs—SULFATHALIDINE® and streptomycin—are slowly absorbed, *thus work hardest where they are needed most* . . . in the gut itself! The third drug—sulfamethazine—gets into the bloodstream *fast* to help check infections that "spill over" into the circulatory system.

In addition to these hard-working antibacterial agents, SULFASTREP Boluses also contain kaolin, which provides a protective coating for the intestinal tract—acts as a potent adsorbent of bacterial toxins.

SULFASTREP acts fast. When SULFASTREP is used to *treat* scours outbreaks, response to treatment is usually very rapid... animals sometimes recover after only a single dose. SULFASTREP Boluses are economical and easy to use. For best results, as with all drugs, read label directions carefully, and consult your veterinarian for diagnosis and advice before administering.

Don't forget good management—Sanitation, warmth and proper feeding are key factors in preventing outbreaks of scours. As an *added* precaution, extra VITAMIN A & D may be fed to cows during the last three months of gestation. This will help provide adequate vitamin A in their colostrum to meet the needs of their newborn calves. Merck Chemical Division, Merck & Co., Inc., Rahway, N. J.

MERCK — SULFASTREP® BOLUSES *For a* POSITIVE PROGRAM *for* CATTLE HEALTH

Sells culls as frozen meat

How much is old bossy worth? That depends somewhat on the cow, but DeWitt Mitchell, manager, Mainstone Farm of Middlesex County, Massachusetts, never gets less than $40 to $60 above beef prices by converting low producers into steaks and hamburger.

The beef, prepared from their Guernsey herd, is sold year around in the retail farm salesroom, together with milk, eggs, and chickens. Only the T-bone, sirloin, and tenderloin steaks are removed; all other meat is mixed and ground into hamburger. Prices, which never vary, are $1.40 per pound for steaks, 70 cents per pound for hamburger, and 80 cents for a 1-pound package of 8 ready-made hamburger patties. All meat is sold frozen from glass-topped display freezer.

"We pride ourselves on the high quality of our meat," Mitchell says. "Only the best of the low producers are dressed out. If she's too thin, we don't use her as the hamburger is not as good. We find that by taking the high-protein feed away from her the last two to four weeks before dressing, the meat tastes better."

Meat is handled professionally on a flat rate basis. The dressing plant gets a $5 fee plus the hide and offal for killing, skinning, halving, and hanging five to six days under refrigeration before transporting to the frozen food locker plant.

For a flat $35 per animal, the locker plant cuts and bones the carcass, grinds the meat, packages in cellophane and freezes, holding until needed at the farm salesroom.

Cows average out about one-third liveweight as meat, about 15 to 20 pounds of steak.

"Here's a 5-year-old cow that couldn't be bred," Mitchell says, pointing to an entry in the farm record book. "The slaughter house offered us $160. We turned her into beef and netted $221."

Here are his figures:

Cut and bone	$ 35.00
Make up 100 patties @ 8 cents	8.00
Total	$ 43.00
Kill cow	$ 5.00
Transportation	6.00
Total	$ 54.00
368 pounds beef	$275.00
Total cost	— 54.00
Net income	$221.00

By retailing as hamburger and steak, the Mainstone Farm received $61 over and above the slaughter house price on this animal.

Meat is also delivered in insulated bags to milk route customers.

—Charles L. Stratton

Keep orchard grass palatable

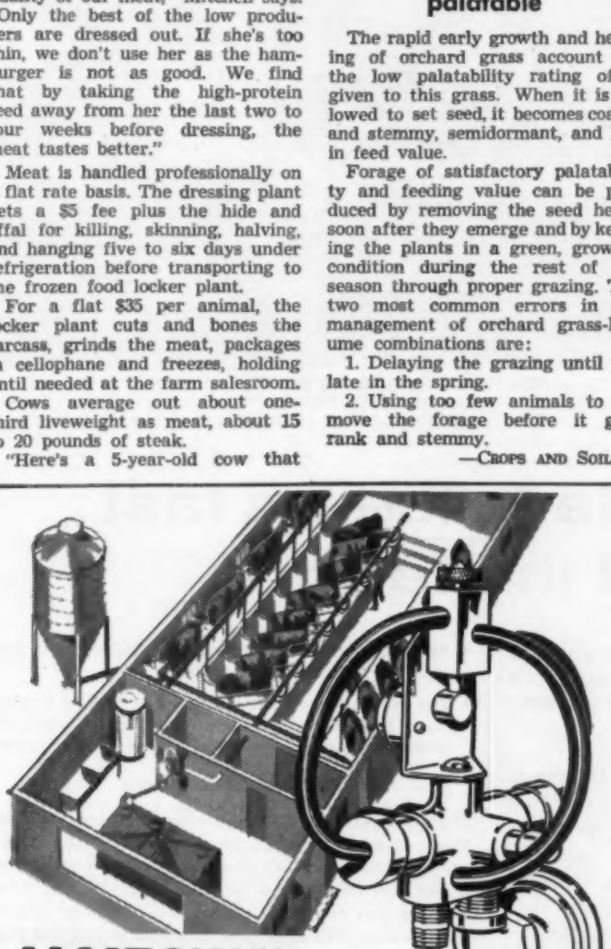
The rapid early growth and heading of orchard grass account for the low palatability rating often given to this grass. When it is allowed to set seed, it becomes coarse and stemmy, semidormant, and low in feed value.

Forage of satisfactory palatability and feeding value can be produced by removing the seed heads soon after they emerge and by keeping the plants in a green, growing condition during the rest of the season through proper grazing. The two most common errors in the management of orchard grass-legume combinations are:

1. Delaying the grazing until too late in the spring.

2. Using too few animals to remove the forage before it gets rank and stemmy.

—Crops and Soils



JAMESWAY PIPELINE MILKER

MILKS, WASHES, GUARDS HERD HEALTH

Permanently mounted Magic Master Electric Pulsators operate up to 6 milkers each, are not affected by heat or humidity. Differential regulator milking protects cows, prevents creeping teat cups. Uniform pulsation helps maintain normal milk let-down. "Bullets" of water shot through line for cleaning, reduce hot water and detergent costs. Available for pipeline milking or bucket milking.

Jamesway dealerships now available in some areas. Write for information.

Easy to own with Jamesway's "Pay-As-You-Profit" program

Free Catalog

Free information on Pipeline Milkers; write James Mfg. Co., Fort Atkinson, Wis., Dept. HD-41-A.

FIRST IN POWER CHORING®

Jamesway.

A DIVISION OF ROCKWOOD & CO.

FOR POULTRY • FOR DAIRY • FOR LIVESTOCK

Fort Atkinson, Wis. • Lake Mills, Wis. • Artesia, Calif. • Preston, Ontario, Canada

Amersfoort, Holland • Bilbao, Spain M-1-1

Paul Crouse inspecting part of his record Vertagreen-grown corn crop. In addition to his extensive farming activities, Mr. Crouse is also Democratic Committeeman for Center Township and President of the West Greene High School PTA.

Penn. Farmer produces 100 bushels of corn per acre—tops average yield by 28 bushels with Armour Vertagreen

Paul Crouse, progressive Pennsylvania grower, has this to say about his corn crops, which he fertilizes with Armour Vertagreen 6-12-12. "The average corn yield in Greene County is 71.8 bushels of shelled corn per acre. We consistently produce more than 100 bushels an acre with Vertagreen. Since changing to Vertagreen, I have consistently produced higher yields of excellent quality corn."

Mr. Crouse in partnership with John W. Scott, proved Vertagreen's worth in another way. He and Mr. Scott raise cattle and sheep, and produce grain, hay, and pasture for their livestock. Last year they used Vertagreen 6-12-12 on their alfalfa crop on Aug. 6 immediately after the second cutting. On Aug. 26, they had over 20 inches on the third cutting—*a growth of an inch per day!* And Mr. Crouse says: "You just can't find better third cutting alfalfa anywhere."

Paul Crouse and John Scott cutting their alfalfa, which grew over 20 inches in 20 days with the help of Vertagreen 6-12-12.

As top growers like Mr. Crouse and Mr. Scott know, *performance* is the test of a fertilizer's worth. It isn't how little a fertilizer costs, but how much it does that counts. That's why leading farmers in every region put their confidence in Armour Vertagreen, the complete, premium plant food that gives crops *all* the vital nutrients they need for health and growth. See your friendly Armour agent for Vertagreen soon. Let the extra profits from your fields prove to you that ***Vertagreen is worth more because it does more!***

There's An Armour Fertilizer For Every Growing Need

ARMOUR AGRICULTURAL CHEMICAL COMPANY

LIME boosts corn yields

You can increase yields 10 to 15 bushels per acre by adding lime to your well-fertilized soil.

by Richard L. Lee

BOOST your 1961 corn yields by making needed lime applications, says Alva Preston, University of Missouri soils specialist.

Missouri demonstrations showed that limed but unfertilized corn plots yielded 5 to 8 bushels an acre more than similar adjoining plots not limed.

And, additional test work pointed out that lime was even more helpful on plots fertilized for high corn yields. Plots with all needed soil minerals but limestone were 10 to 15 bushels an acre lower in yield than plots getting adequate lime applications along with fertilizer.

In the Missouri test work, Montgomery County's unfertilized demonstration plots yielded 18 bushels an acre as compared to 37 bushels on an unfertilized but limed plot.

On similar plots in Morgan County, yields were 44 to 33 bushels an acre in favor of the limed plot; in DeKalb County, yields were 39 and 28 bushels in favor of limed plots; and in Callaway County, yields were 33 and 28 bushels, again in favor of the limed area.

Don't worry about slander; it will rub off when it gets dry.

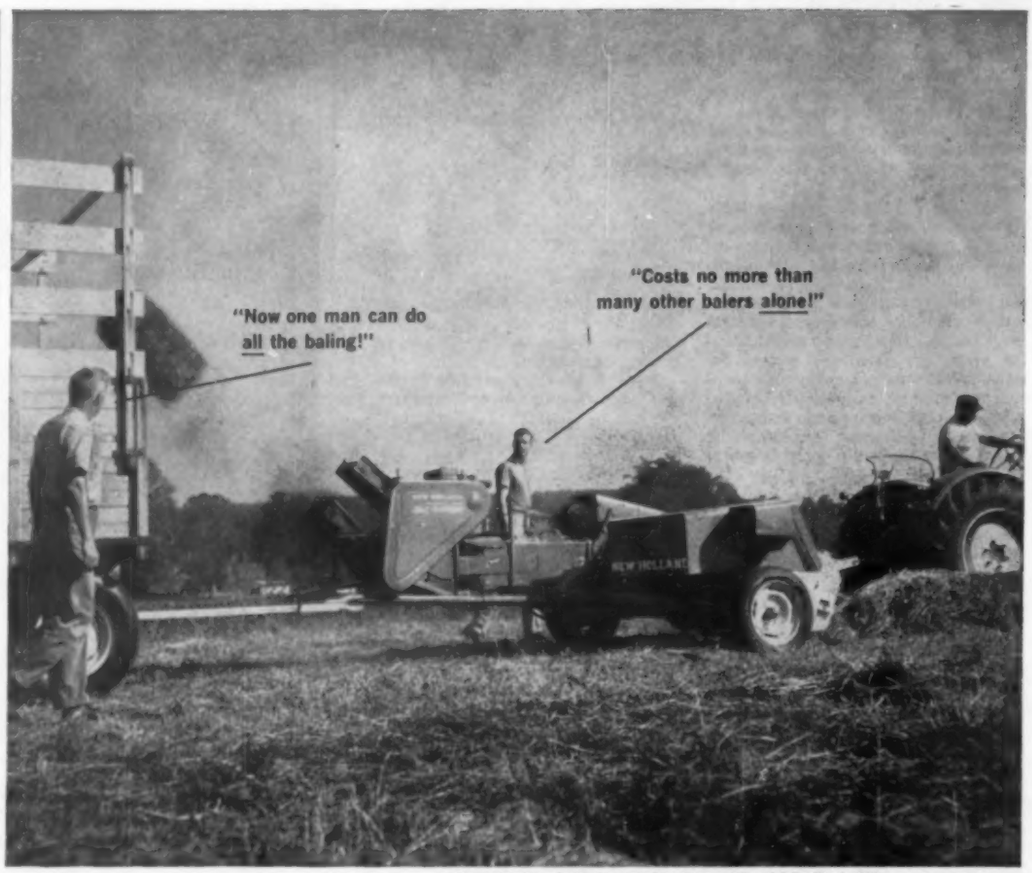
On a heavily-fertilized but unlimed plot in Morgan County, the yield was 93 bushels of corn an acre. Adding lime upped the yield to 110 bushels. Similar differences were noted in Callaway County where a fertilized but unlimed plot made 67 bushels an acre and a properly-limed plot made 83 bushels.

Preston says lime helps increase corn yields in several ways. First of all, a corn crop's calcium requirement is high and lime supplies this important element.

Second, lime speeds the breakdown of organic matter in soil and delivers more nitrogen to plants.

Third, it makes phosphate present in the soil more readily available to the corn plant.

FIELD CORN on limed soil high in N-P-K was 24 inches high June 25. This corn yielded 135 bushels per acre compared to a yield of 112 bushels for the unlimed corn.



New Holland Compact Hayliner 65, with Bale-Thrower, costs no more than many balers *without* automatic wagon-loading feature! This labor-saving advance is also offered on the larger Hayliners.

Now bale twice as fast with half the labor!

Today there's a new way to bale—that lets one man bale and load faster than a 2- or 3-man team! Fully proved on hundreds of farms. Choice of five baler models, including new Compact model.

Here's the biggest farming news of '61—*proved, practical one-man baling!* Now one man can bale *and load*—in half the time it takes with hand-loading!

The new system consists of a New Holland Hayliner plus a simple, sure-fire mechanism that "airlifts" the bales into the trailing wagon. You position the bales from the tractor seat. Doesn't miss—even on turns.

What it costs

Because of its basically simple principle, this New Holland baling method costs surprisingly little. In fact, the lowest priced baler—the new Compact Hayliner 65 with Tele-Flow feed—costs no more with Bale-Thrower than many balers without automatic wagon loading! Actually, any Hayliner model can soon pay for itself:

- **You will save your own time,** because you will bale steadily at much faster speed.
- **You will save labor costs.** Instead of loading wagons, your helpers can be doing other, more profitable work. You needn't hire extra help for haying, either.

At your dealer's now

If you already own a twine-tie New Holland Hayliner, you can easily convert to one-man baling. If your present baler is another make, your New Holland dealer will offer you a generous trade-in, and terms that let you pay as you save. See him right away—plan to enjoy the savings of one-man baling *this* year!

BALER BOY TWINE gives you imported twine economy, *plus* New Holland's rigid quality control. For extra strength, ask for New Holland's Super 9 or Long 10 twines.

NEW HOLLAND
"First in Grassland Farming"

TEAR OUT NOW—MAIL TODAY

NEW HOLLAND MACHINE COMPANY Division of Sperry Rand Corporation
304 First Street, New Holland, Pa.
Please send full information about your Hayliners with automatic wagon-loading feature. I put up_____tons of hay per year.

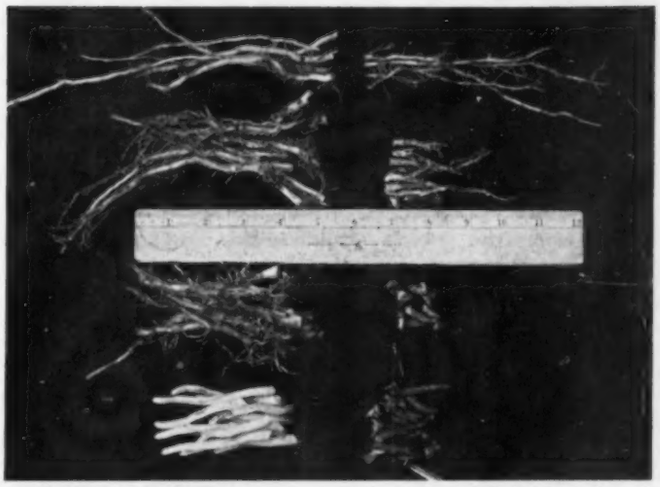
Name_____

Address_____

Rootworms keep chewing

In June or July the eggs hatch and larvae eat off the underground crown roots. Apply chemical before planting.

by J. W. Apple



ROOTWORM DAMAGE to crown root is shown at right, normal root on left. Band treat with one-half pound heptachlor or aldrin per acre.

NORTHERN and western corn rootworms are becoming the most serious insect pests on corn throughout the Midwest.

Both rootworm species overwinter in the soil as eggs which hatch the following June or July. Larvae invade the underground crown roots of the corn plant, and if half or more of these are destroyed the plant is likely to blow over during storms in late July or in August.

After lodging, the upper end of the plant grows vertically, producing a typical goosenecked plant which remains thus until harvest.

Heptachlor and aldrin are the most commonly used insecticides for these pests. Maximum elimination of the larvae can be accomplished by the use of one pound actual insecticide per acre as a broadcast soil treatment.

The most satisfactory procedure is to apply the chemical, as a spray, in granular formulation, or in broadcast fertilizer just before final discing. A new approach is to apply aldrin or heptachlor granules during the winter months (December 15 to March 15). In this case, it would be advisable to use 1.5 pounds of insecticide per acre because of the necessary delay in working the soil.

Row treatments for rootworm control are slightly less effective than broadcast applications but they constitute a less expensive method and are used by the majority of farmers at the present time for soil insect control. In this case, **only one-half pound per acre of heptachlor or aldrin need be used for rootworm control.**

A field having other soil insects should receive a full pound of insecticide per acre in the row.

Row treatments can be made with sprays, treated fertilizer through a split-boot attachment, or granules applied with a planter mounted applicator. This latter method is becoming the most popular technique among corn belt farmers. Regardless of the method employed in making a row application, the chemical should be in the soil above the seed and not left on the surface from where it may be lost before rootworm eggs hatch.

The use of insecticide granules in the row requires a metering device that will distribute 2.5 to 5 pounds of formulation over 13,070 linear feet (40-inch rows) per acre. This amounts to 0.00306 of an ounce per running foot and many factors both mechanical and chemical may influence the distribution and effectiveness of these formulations.

Improvements in granule formulations will result from rootworm control studies involving variables associated with these preparations.

An initial test of this type was conducted at the University of Wisconsin Arlington Farms in 1960 where carefully measured quantities of insecticide granules were drilled into the soil above the seed.

It was found that greater plant protection was associated with more particles per linear foot as provided by a low insecticide concentration (5 per cent) and fine particles (30/60 mesh). As insecticide concentration increased up to 20 per cent and particles became more coarse (down to 8/15 mesh), there was a noticeable loss in efficiency.

These findings prompted the Wisconsin station to recommend row treatments with aldrin and heptachlor granules prepared at a 10 per cent concentration on particles of about 20/40 mesh size. Five pounds of such formulations should be used on an acre for rootworm control while 10 pounds would be required for wireworms and other hard-to-kill soil insects.

A 10 per cent granule in the row will cost more per acre than the customary 20 per cent product, but less than a broadcast application.

The author is a professor of entomology, University of Wisconsin.

Now in one mower line all the features farmers demand!

Cuts clean . . . cuts smooth . . . cuts fast! Matches mowing to your haying speed!

No matter what type of mower you prefer, you get *more field-proved features* when it's a New Holland! For example, check the quality features of the New Holland "47" semi-mounted Mower:

- **Heavy-duty guards** stay in line. Firmly seated against extra-thick cutter bar.
- **Universal hitch** fits most popular make tractors.
- **Ledger plates** are beveled; keep their sharp, saw-tooth edges.
- **Pitman sheave and flywheel** are cast in one piece to absorb shocks. Fewer bent shafts and sheared keys.
- **V-belt sheave** is quiet; quickly adjusted for proper tension. Gives slip clutch action without complicated adjustments.
- **Tilt adjustment** (crank type) gives you clean cutting action in a wide variety of crop conditions.
- **Built-in lead and lead adjustment means** cleaner cutting with less power.
- **Double-hinged inner shoe** and shoe support, both front and back, give extra sturdiness and flexibility.
- **One-piece welded frame** has no bolts to work loose —always stays tight.

There's a New Holland Mower to fit your needs: "47" semi-mounted, "45" fully mounted and "46" trail-type. See your New Holland dealer now; have him demonstrate the mower you need, right on your own farm! So easy to own, too, with his flexible finance plan!

FREE BOOKLET! Write New Holland Machine Co. Division of Sperry Rand Corp., New Holland, Pa.

New Holland "47" Semi-Mounted Mower cuts your crops with effortless speed. With a New Holland "404" Crusher or "401" Crimper, you mow *and* condition in *one* fast trip!

New Holland "46" Mower (Trail-Type), attaches to almost any tractor by dropping a pin into the drawbar.

NH NEW HOLLAND "First in Grassland Farming"

Don't expect miracles!

Breeding, conception, and calving is an involved process. "One-shot" cures are rarely successful. Here's a guide to breeding health.

by E. A. Woelffer, D.V.M.

MASTITIS is considered by many to be the most costly disease in dairy cattle. Losses from reproductive failures are nearly as large as those from mastitis in both beef and dairy cattle.

Dairymen keep asking us if there aren't some "shots" which can be given which will clear up everything and get the cow with calf.

Only a few days ago a young dairyman wanted to know if there was some drug or hormone which he could feed to his cows to bring them in heat.

Some months ago we examined a truckload of heifers that were being shipped to South America. They had been bred several months ago and the buyer wanted a pregnancy determination before accepting them. All heifers were found with calf.

While at the farm the owner requested additional examinations. One of these, a valuable young cow and the pride and joy of the herd, had been bred approximately 150 days. The owner was so certain she was with calf that we passed her by. Finally, however, we went back to check her. You guessed it, she was not pregnant, much to the owner's disappointment.

One other cow, bred six months ago, also was without calf. These results stimulated this dairyman to do some thinking on the subject. Now he has his herd checked monthly for breeding health.

Similar experiences are inducing more and more herd owners to have periodic herd health examinations by their veterinarians. Increased milk production, larger and healthier calf crops, and a more profitable over-all enterprise are the rewards of such a breeding health program.

Causes of failures . . .

What are the factors which interfere with getting cows in calf at the right time? They are many but most can be listed under nutrition, management, disease and infection, heredity, and congenital defects. Of equal importance is the health and vitality of the male sperm selected to unite with the female ovum.

Space doesn't permit us to discuss all of the factors involved. The important thing is to recognize they do exist and that much can be done to increase or maintain a high level of fertility.

Let's just say a word about brucellosis. Do not sell this disease short. The Brucella germ is determined to stay in spite of the fact it, long ago, wore out its welcome.

The disease produces inflammation and injury to mucous membranes of the uterus and other organs of reproduction which may result in abortion, retention of fetal membranes, and permanent injury. Such activity definitely interferes with reproduction.

There are other infections which may interfere with fertilization, implantation, and a normal calving. These include such venereal infections as trichomoniasis and vibriosis. Leptospirosis and a number of other infections also cause abortions and related breeding troubles.

Early diagnosis . . .

Disease or infection play prominent roles in reproduction but there are other causes of failure to show heats, failure to conceive, failure to retain the fetus in early or late pregnancy. Abnormal heat periods, nymphomania, and many other factors at some time or another, interfere with normal reproduction in every herd.

What's the best thing to do when you suspect things are wrong?

Get a diagnosis. In all disease work, our first objective should be to prevent trouble. The next is to recognize and eliminate it as quickly and effectively as possible.

Periodic herd health examinations are the means of preventing or diagnosing early developments. Periodic examinations may vary from a month or less in large herds, to periods of two or three months in smaller herds. Examinations of reproductive tracts of cows fresh up to two months tend to "nip in the bud" any development of infection or cystic formation.

Inflammations of the vagina (vaginitis), the cervix (cervicitis), pus in the uterus (pyometra), or, less frequently, inflammations or plugging of the Fallopian tubes (salpingitis), tend to become chronic or progressively worse if not given early attention. Treatment of long standing cases is less effective and occasionally useless.

Examinations not harmful . . .

Pregnancy determinations are an important part of a constructive breeding health program. In some animals, pregnancy can be determined as early as 28 to 30 days. Most veterinarians prefer to wait until 40 days have passed. From time to time, we receive letters asking if pregnancy determinations are reliable and safe. The answer to both questions is "yes." If the examiner is careful and experienced, examinations are exceedingly accurate and safe.

Occasionally an animal returns to heat following such an examination. When this occurs, it indicates the animal has absorbed its fetus or has had an unobserved abortion. These early abortions or absorptions occur frequently when venereal infection is present, less frequently in herds where the breeding health is relatively good.

In veterinary practices where thousands of cows are examined yearly, it is not uncommon to find cows in the act of aborting. Sometimes the tiny fetus is found in the vagina or in the cervix as it is passing through.

If you, as herdsman, observe an

New Holland "404" Crusher maintains constant spring pressure to avoid overcrushing. Exclusive pickup height adjustment lowers throat opening closer to ground. Hooks up to a New Holland "47" Mower, so you can mow *and* crush in one operation.

New Holland "401" Crimper crimps stems with smooth meshing action. Leaves a light, fluffy, fast-drying swath. Hooks up to a New Holland "47" Mower.

Pick your way to save a haying day!

Crimp it or crush it . . . only New Holland offers you a choice!

Which do you prefer . . . crimping or crushing? Either way, you can save up to 50% in curing time with these New Holland Hay Conditioners.

Humid area or dry—it makes no difference. Hay conditioning will help you cure your hay faster, more evenly. And you'll get better hay too, richer in the proteins that mean bigger profits for you. That's because New Holland Hay Conditioners—"404" Crusher or "401" Crimper—save precious feed value, give you dependable performance when every moment counts!

See your New Holland dealer soon. Ask him to help you select and to demonstrate the conditioner that's right for your farm. Easy to own, too, thanks to his flexible finance plan!

FREE BOOKLET—write New Holland Machine Company Division of Sperry Rand Corporation, New Holland, Pennsylvania.

NH NEW HOLLAND *"First in Grassland Farming"*

abortion, keep a record of it and call it to the attention of your veterinarian. This information as well as other abnormal symptoms may be valuable to him in determining the cause and in formulating a plan of prevention and treatment.

What you can do . . .

As the owner or herdsman, you have an exceedingly important part in establishing breeding efficiency in your herd:

1. Observe heats on both cows and heifers. See to it that all females get bred at the proper time. Some animals fail to show heats. These "mild" heats are easily overlooked. The majority of healthy females, however, do exhibit heats.

2. Don't breed females too soon after calving, never before 60 days.

3. Do not breed cows which show an abnormal discharge or exhibit more than one abnormal heat.

4. Keep good records and keep them up-to-date. Over a period of years, good records, if kept up-to-date, provide much information. This can be useful in diagnosing and planning a breeding health program. It is helpful in selecting breeding sires and female families.

5. Unthrifty heifers often fail to show heats.

6. Overly fat females, especially heifers, are difficult to get in calf.

7. Cows should be bred late in the heat period.

8. Have springing cows in good physical condition.

9. Provide the springing cow with a clean, roomy, well-bedded box stall. Clean, sanitary conditions at time of calving will help give the newborn calf a good start and possibly avoid some breeding troubles in the dam later on.

Weather and ketosis

Temperature extremes may be more important than other environmental factors, including diet, as a cause of ketone formation in blood of dairy cattle.

This may explain why ketosis, a metabolic disorder caused by an excess of ketones in the blood, is more prevalent among dairy cows in some years than in others. Ketones are intermediary compounds formed when fats or some amino acids are broken down for energy.

Ketosis is known in practically every country where dairy farming is practiced, and often affects high-producing cows. A million cases are reported in the U.S. in some years. The disorder is seldom fatal, but it frequently lowers vitality and reduces milk production.

Experiments by P. J. Van Soest, A.R.S. chemist at U.S.D.A.'s agricultural research center, Beltsville, Md., showed that when the temperature dropped to 3 degrees Fahrenheit during the winter, ketones in the blood of test cows were four to six times the normal .002 to .006 per cent. At 100 degrees the amount of ketones present was about double normal.

Two or three days passed before a change in air temperature caused a change in ketone level. Why either high or low temperatures affected ketone levels in the blood is not known.

Tests were made over an 18-month period of a summer season and two winters. Six dairy cows with no history of ketosis were used. Increases in ketones induced in test animals by extreme temperatures masked attempts to study variation as influenced in individual cows by lactation, season, environmental conditions, and physiological status.

Despite the high levels of blood ketones developed during tests, no symptoms of ketosis were noted, indicating that some animals may be resistant.

Feed cows on pasture

Letting cows shift for themselves on the first grass that shows in the spring is not a good idea.

According to Clarence Olson, North Dakota state extension dairyman, it's a matter of nutrients. Early fast-growing pasture has a high moisture content and is also very high in protein and vitamins. What is missing is energy and dry matter.

Dry roughage can make up for the shortcomings of early pasture growth. Hay supplied in the feedlot, for example, provides the energy and dry matter needed to balance the high protein content of early grass. The shift from barn to pasture feeding should be gradual. Keep offering hay or silage to your cows at this time of year.

To get an idea of what it means for a cow faced with a steady diet of early grass, try living on nothing but lettuce salad for awhile. It probably won't keep you going for more than a few hours.

A cow on early grass is in the same fix. If she doesn't get energy from feed, she will have to take it from her own body in order to keep going. That means lost weight and a lowered butterfat test.

Pesticide safety check

This exam will test your understanding of toxic chemicals and what precautions to follow in using them. The correct answers are indicated at the end of the article.

No	Yes	
—	—	Do you read the label before using sprays and dusts and follow directions?
—	—	Do you store in original, labeled containers?
—	—	Do you keep pesticides out of reach of children, pets, and irresponsible people?
—	—	Do you avoid smoking while spraying or dusting, when this is directed?
—	—	Do you avoid inhaling sprays or dusts, and wear protective clothing and masks, when directed to do this?
—	—	Do you avoid spilling materials on your skin, and do you wash immediately when they are spilled?
—	—	Do you wash hands thoroughly after spraying or dusting and before eating or smoking?
—	—	Do you cover food and water containers when treating around livestock or pet areas?
—	—	Do you always dispose of empty containers so they pose no hazards to humans, animals, or valuable plants?
—	—	Do you wash contaminated clothing before re-use, when this is directed?
—	—	Do you always observe label directions to keep residues on edible portions of plants within limits permitted by law?

(All answers should be "yes.") Note: In case of accident, call a physician or get the person involved to a hospital immediately. Hospitals, doctors, and poison control centers have available information to treat patients effectively, if they are called immediately.

Rakes "whistle-clean" anywhere!

New offset wheels, "floating" basket, prevent tooth breakage, too.

From New Holland—the advanced Model 56 Rolabar Rake! Its cleaner raking action puts more hay . . . more dollars . . . into the windrow. Saves nutrient-rich leaves and blossoms, to cut feed supplement costs. You get all these quality features . . .

QUALITY YOU CAN SEE

- NEW OFFSET WHEELS, "FLOATING" BASKET, give cleaner, smoother raking; protect teeth on uneven ground.
- "ROLABAR" ACTION exposes stems to the air for quicker drying.
- BOTH GROUND WHEELS DRIVE—the "56" continues to rake on either right or left turns.
- FAST: rakes full 8 ft. swath up to 8 mph.
- LESS HAY MOVEMENT saves protein-filled leaves and blossoms; rakes at *full right angle.*
- LIGHT-TO-TIGHT WINDROWS through easy crank adjustment.
- PATENTED SPRING-LOADED JACK makes hitching up quick and easy.

HIDDEN QUALITY, TOO!

- EXCLUSIVE 100-ACRE LUBRICATION saves time.
- SEALED TINE BAR AND REEL BEARINGS give lifetime service; need no lubrication.
- NO IDLERS, BELTS OR CHAIN LINKS to tighten or replace.
- REPLACING TINES IS EASY. Inexpensive tines may be replaced *individually;* no need to remove tine bar.

Model 56 Rolabar Rake gently lifts and rolls mowed hay into light, fluffy windrows for fast, even curing. Saves nutrient-filled leaves and blossoms.

Ask your New Holland dealer to demonstrate the "56" Rolabar Rake on your own farm; check his flexible finance plan. See all the advantages of owning New Holland *quality.*

FREE BOOKLET! Write New Holland Machine Company Division of Sperry Rand Corp., New Holland, Pa.

NH NEW HOLLAND *"First in Grassland Farming"*

Forages need balanced diet

Plants become weak, sickly, and eventually die if they don't receive the right kind of food and in the correct amounts.

by John N. Falloon

FORAGES do need a balanced diet for top yields. Proper balance among plant food nutrients is essential, but that alone is not enough. They must be in plentiful amounts, too. Otherwise, yield is low. Improper balance may mean a low yield but more important, it may mean poor-quality feed.

If you are conscious of the need for balance, you may use what is often referred to as a balanced fertilizer. But don't worry about the balance. The important thing is the soil balance after treatment.

Soil tests important . . .

What is the plant food nutrient situation in your soil now? To find that answer you should test your soil. The test is then interpreted in terms of the kind and amount of soil treatments to be used.

This matter of balance can be easily illustrated by comparing soil to a car. Let gas represent nitrogen and oil represent the minerals including limestone, potassium, and phosphorus.

If you go on a trip with plenty of oil in your car but just a little gas, you can't go very far. Imagine you have lots of gas and think you have plenty of oil, too, but you don't. Again you don't get very far until you have trouble.

On the other hand, if you have a tank full of gas and plenty of oil, you really can go somewhere, especially if you stop once in awhile and fill up. So it is with soil.

Put on the needed limestone. Add phosphorus and potassium in fertilizer. Then use nitrogen to increase the yield. Nitrogen can be added alone as long as the minerals are adequate, or it can be added in combination with the phosphorus and/or potassium if they, too, are needed.

Watch the results . . .

Adding soil treatments in forage production is about the same in principle as for grain production. The big difference is in what you can see. If you do something wrong in the case of grain, you measure the low yield or you see the lodging, shriveled grain, or other "telltale" signs.

But forages, especially pastures, are "foolers." A darker green color usually means more growth, but may not in some cases. Likewise, more tonnage or more cow days on pasture does not always mean more real feed value. The amount of milk produced from such feed is a much better measurement.

Many experiment station measurements and trials, on widely scattered farms over the area, show conclusively that yields of mixed grasses and legumes can be increased with soil treatments. With proper treatments, the percentage of crude protein, phosphorus, and calcium also goes up, so the production per acre of these increase more than the increase in bulk.

What causes increase?

Is this increased percentage due to a change in species after soil treatment or is there a change in composition within a species? This is a highly controversial matter.

We know clovers generally are more abundant after soil treatment than before. Also, clovers are higher in protein, phosphorus, and calcium than grasses so there is no question but what a change in species after soil treatment at least partially accounts for some of the change in composition.

A change in composition of forage as a result of soil treatment is much more likely than in the case of grain. Some of the likely changes in composition are not measured in the common ash analyses.

The fact that cattle choose to graze treated portions of a field does not completely answer the question of whether it is because of the species which grows after treatment or because of a change in composition within the species.

Soils low in fertility produce pastures with higher protein and mineral content after soil treatments than without soil treatments. And the total yield per acre is more.

You should apply nitrogen to stimulate grasses and minerals to step up legume growth in proportion to the grass. Actually, it is easy to drive legumes out of a mixture with nitrogen. This is especially the case when the grass is allowed to grow up. If grazed down or removed regularly and often, nitrogen is not as much of a deterrent to legumes in grass-legume mixtures.

Quality is often overlooked because of economics.

Nitrogen is the spectacular fertilizer nutrient because it is the thing that gives striking yield increases. Yet, the less spectacular treatments of phosphorus, potassium, and limestone are often critically needed. Do not neglect using them in abundant amounts.

The author is an extension professor of soils at the University of Missouri.

Fans for fly control

Restrictive use of chemicals for flies in dairies calls for better sanitation and prevention measures.

Another possibility is the use of fans in the milking barn to discourage flies from swarming over the cows and operators.

Users seem to be convinced that fans are one of the answers. Out of 49 fans put on a trial basis last April, 47 were "kept."

A 32-inch fan in a 50-foot barn will move enough air to discourage most of the flies that try to enter. It is estimated that air movement of 10 miles per hour will discourage, if not eliminate, fly swarms.

—UNIVERSITY OF CALIFORNIA

Now...a top-performing chopper priced as low as a compact car!

New Holland's 616 Forage Harvester takes on heaviest crops in easy stride

New Holland's 616 Forage Harvester has exclusive "Positrol" feed—chops finer for easier mechanical handling, storing and feeding!

The all-new "616" equals or surpasses the chopping ability of any harvester in its class. Loaded with New Holland-quality "exclusives":

- **Base unit has exclusive "Positrol" feed.** 30"-wide feed rolls evenly feed a carpet of material at high speed into the cutter head; assures uniform, clean-cut forage. Ends feed apron breakdowns.
- **Built-in knife sharpener** keeps knives razor sharp to save power and give you finer-cut silage.
- **Direct cut attachment** has over 5 feet of actual cutting width. Close-coupled reel, auger, feed rolls and cutterhead assure positive, straight-through feeding. That's why the "616" *equals the capacity* of many larger, cumbersome and costly harvesters.
- **Also available:** windrow pickup and cornhead. Snap on to your "616" in minutes.
- **Built-in, power-driven feed rolls** on the cornhead assure positive feeding of all row crops—standing, tangled, or down.
- **Wide-spaced row crop gathering points**—50% wider than on most harvesters—make it easier to stay on the row.

Ask your New Holland dealer to demonstrate the 616 Forage Harvester on your own farm; check his flexible finance plan.

FREE BOOKLET! Write: New Holland Machine Company Division of Sperry Rand Corporation, New Holland, Pennsylvania.

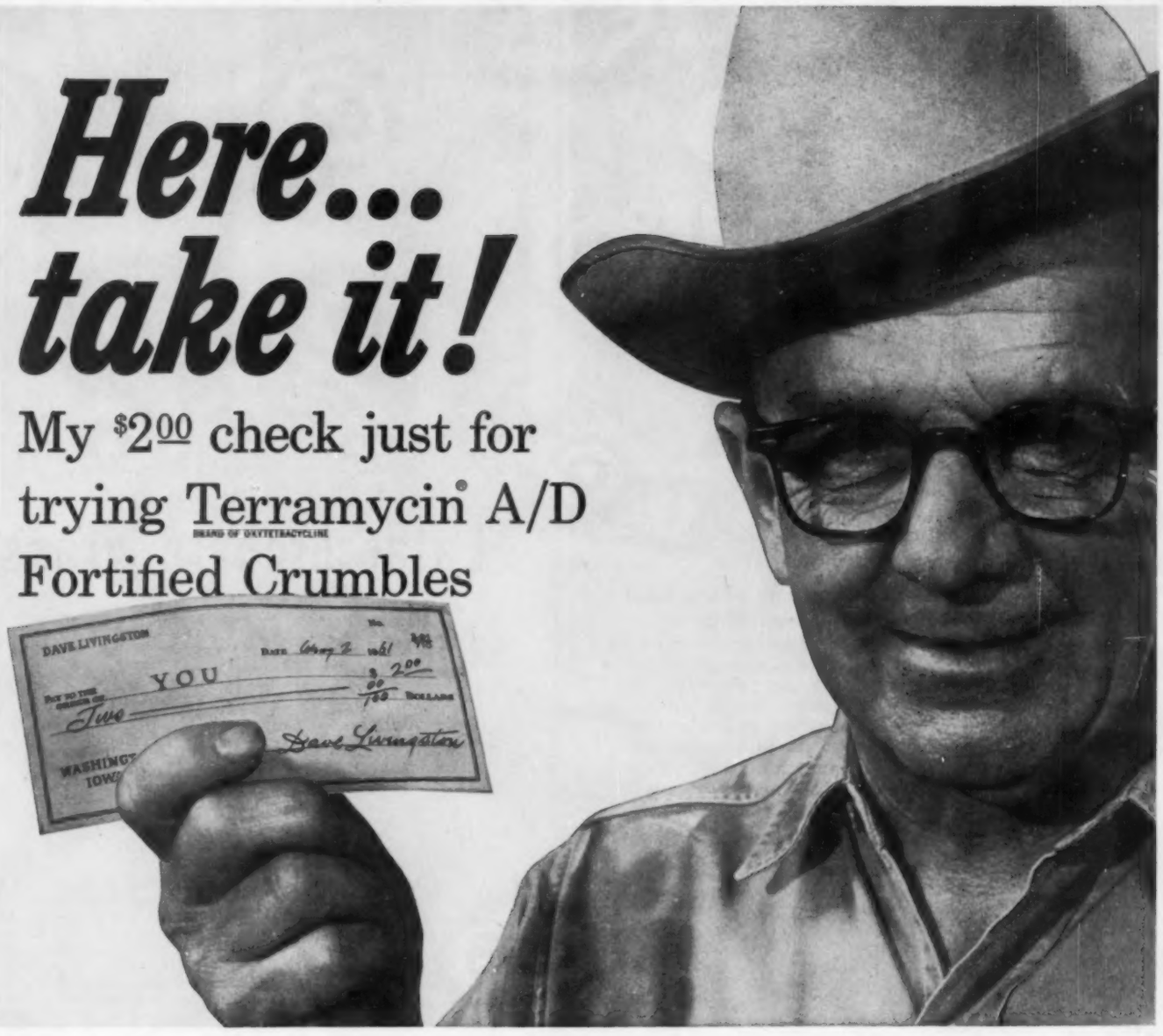
Fill your silo faster, easier . . . use the new 24 tractor-drive Forage Blower. Tops in capacity—low in power requirement; 100-load lubrication!

NH NEW HOLLAND "First in Grassland Farming"

Here... take it!

My $2.00 check just for trying Terramycin® A/D Fortified Crumbles

BRAND OF OXYTETRACYCLINE



Here's How...

to "milk" Dave of his $2 check and get an extra-large milk check from your own herd, too!

Buy a bag of Terramycin Crumbles at your animal health supplier's. Have him stamp or sign the circle on the bag containing the A/D.

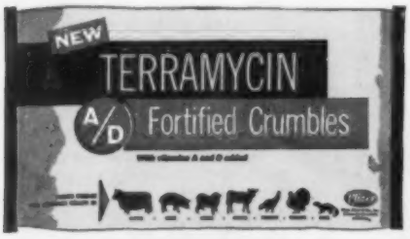
Use the Crumbles with your own herd and see the extra milk you can get. Then mail the A/D circle along with the coupon below to Dave. It might take him about three weeks to get your check in the mail . . . but he's good for it.

The New Way to increase milk production

Terramycin Crumbles can help you increase milk production for the entire milking period. Seventeen trials show that Terramycin helped increase production by an average of .87 pound per cow per day based on a 186 day lactation period. That's more than 161 pounds of extra milk per cow.

And Terramycin Crumbles give you bonus health-giving ingredients—all at no extra cost. Every pound of these Crumbles is fortified with 160,000 units of vitamin A and 16,000 units of vitamin D. There's no crumbles to match them.

See your animal health supplier today . . . and take advantage of the $2.00 offer.



Extra vitamins A & D at no extra cost

Pfizer

Chas. Pfizer & Co., Inc.
New York 17, N.Y.
Science for the world's well-being®

Mail to:
Dave Livingston
Washington,
Iowa

Please send dealer verified A/D circle from a bag of Terramycin A/D Fortified Crumbles along with this coupon for your $2.00 check. Limit: one check per customer. Not good where prohibited by law. Not valid after May 31, 1961.

A/D

Name_____
(Please print or type)

Address_____

City_____ State_____

ask the man who owns a

Badger

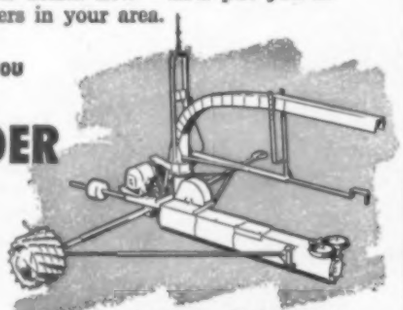
BARN CLEANER

. . . for PROOF that Badger QUALITY Pays a Bonus in Long Life, Low Upkeep and Dependability

No one knows better than a Badger user the importance of the extra quality and muscle Badger builds into a barn cleaner. From the all spur-gear transmission to the rugged, forged-link chain, every part is carefully made to deliver peak performance day-in and day-out for years — to save your pocketbook while saving your back! There's a Badger for every size and type barn. See your local Badger dealer now — he'll put you in touch with several users in your area.

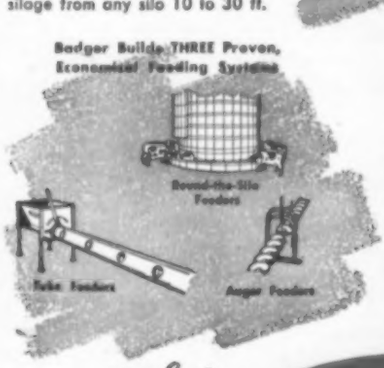
Feed ANY SILAGE, WHEN you want it . . . with a Badger

SILO UNLOADER



Complete reliability — proven on thousands of farms, in all types of silage (even frozen solid) — pays off in time and labor savings . . . High-quality, big-capacity, rugged. Digs out and fluffs up silage from any silo 10 to 30 ft.

Badger Builds THREE Proven, Economical Feeding Systems



BUY EARLY AND SAVE this spring

There's a big cash saving if you order now for later delivery and installation — and if you have the cash to buy outright, your money will earn a substantial dividend! Ask your Badger Dealer about this plan that rewards you for buying early . . . and the earlier you buy, the more you save.

"Pay as You Save Plan" available

Badger

send for literature

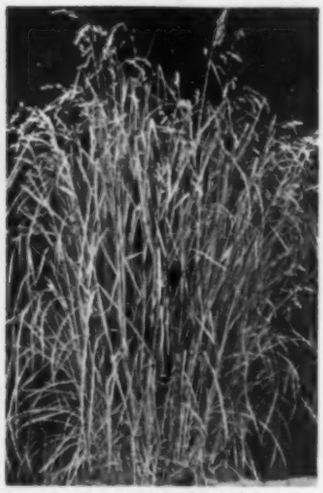
BADGER NORTHLAND, INC.
Dept. H, Kaukauna, Wisconsin

Please send literature on the following:
☐ Barn Cleaners ☐ Silo Unloaders ☐ Bunk Feeders
☐ Feedlot Layout ☐ Making Grass Silage

Name .....
Address .....
City and State .....

Dealerships available in some areas. Write for details.

MORE FARMERS BUY BADGER SILO UNLOADERS THAN ANY OTHER



NEW WINTER-HARDY, disease-resistant Latar orchard grass is shown on the right. Developed in Washington, its forage production is equal to or greater than commercial orchard grass on left. Both stands are 4 years old.

Latar orchard grass looks promising

Idaho farm plantings showed that cows prefer this variety over most others. It has lowest lignin content, is leafier, and later-maturing.

by Edwin O. Nurmi

IT'S news when the cows in a pasture relish one variety of orchard grass and do not eat another variety in the same field. This selection of one variety over another by grazing animals is a rare occurrence. It is even more unusual between two varieties of a widely-used pasture species. This highly palatable orchard grass is called Latar.

Cows on several farms in northern Idaho preferred to graze the Latar-Ladino clover half of the field and always less on the commercial orchard grass-Ladino clover part.

"My cows showed a 10 per cent increase in milk production when turned in on Latar," said one of these farmers. "Latar does not show spots of excess nitrogen as much as commercial orchard grass."

Scientists at Washington State University, working with the Soil Conservation Service Plant Materials Center, were curious to know if this new grass had some chemical difference that made it taste better to the cows. Sure enough, after the tests were completed, Latar proved to have the lowest lignin content of all orchard grasses tested. It had a lignin content of 6.2 per cent compared to 7.8 per cent for a commercial strain.

Came from Russia . . .

Latar had a long journey before it found its place on northwest farms. Seed of this orchard grass was sent to the United States by the Westover-Enlow expedition in 1934. The sample was given to the expedition by the Institute of Plant Industry, Leningrad, U.S.S.R. Seed samples secured by the expedition were distributed to various locations in the United States for comparative testing.

In 1935, a spoonful of this orchard grass seed, then labeled PI-111-536, came to the Soil Conservation Service Plant Materials Center at Pullman, Washington. It was planted in a single short row to be compared with several thousand other grasses. By midsummer, a dozen plants had emerged in this 20-foot row.

Plant scientists carefully measured the height and the seedling vigor of the new plants. Were they better than the grasses we use, or were they about the same, or were they inferior? How was this new grass going to be rated?

Very leafy . . .

Its future was doubtful, for most of the plants were weak and sickly looking, and only a few were strong and healthy. After the second year of full growth, these few plants still looked strong and robust. The scientists noted that the plants were exceptionally leafy and that they were late-maturing. It appeared this new strain might be an exceptional orchard grass.

Further testing was scheduled. The grass was kept under observation for winter hardiness, disease resistance, forage production, and seed production. After several years of observation, seed was taken from the most desirable plants, and planted for further testing.

This was repeated several times until in 1947 approximately 500 individual plants were started in the greenhouse and space planted in the field in comparison with individual plants of commercial orchard grass.

After two years' observation, small and off-type plants were discarded, and the 1950 seed was bulked from the remaining plants. From then on, the selection would

The author is superintendent of the Soil Conservation Service, Plant Materials Center, Pullman, Washington.

be called P-2453 (accession number of the Plant Materials Centers in the western states).

But, the testing had only begun. How would it do in the field, and how would it react under irrigation? All these questions, and many others had to be answered before it would find its place.

Starting in 1951, P-2453 was planted in comparison with other orchard grasses on Washington State Experiment Stations at Puyallup, Prosser, and Pullman. Idaho and Oregon Experiment Stations also grew these grasses, and many other western grass breeders studied them. Seed of P-2453 was increased at the SCS Pullman Plant Materials Center so that farmers in soil conservation districts could make field-size plantings and compare it with the orchard grass they had been using.

Favorable reports began to come to SCS plant specialists about this new variety. It appeared to be winter-hardy, its production was good, the cows liked to eat it, and it was maturing about the same time as alfalfa for hay. Its forage yield at Pullman was found to be equal to the yield of common orchard grass and superior to the yield of many varieties that farmers were growing.

Proved itself winter-hardy . . .

The final test came during the winter of 1955-56 when orchard grass seedings suffered severe winter damage. Many well-known orchard grass varieties were damaged, but P-2453 showed only slight injury and came through the winter as good or better than commercial strains.

Latar has exhibited winter injury in Wisconsin. An entire stand was lost in 1958-59, and in 1959 50 to 60 per cent of the population was lost. It has survived at some locations in Wisconsin where grown in mass-seeded stands, but even there it has been hurt by Wisconsin winter conditions.

By this time the plant scientists were convinced that this new grass was a superior variety. Latar was the name chosen, as it helped identify it as a late-maturing grass.

Latar was released in 1957 by the Washington and Idaho Agricultural Experiment Stations and the Soil Conservation Service Plant Materials Centers at Pullman, Washington; and Aberdeen, Idaho; and in 1960 by the Oregon Agricultural Experiment Station and the Soil Conservation Service Plant Materials Center at Corvallis, Oregon.

Commercial seed production has been increasing during the past two years in Washington and Idaho. An estimated 75,000 pounds of Latar were available for 1960 planting. A larger amount of seed will be available in 1961.

High fertility fields in irrigated areas, and fertile, dryland areas of more than 18 inches of annual precipitation, are well-adapted for this new variety.

Latar joins the growing family of improved grass varieties with names ending in "ar" that have been developed at the Pullman Plant Materials Center.

It took 23 years to be elevated from an unknown grass in Leningrad to the elite status of a registered variety. Latar's future looks bright. It will provide large yields of high-quality forage for dairymen and stockmen, and it will give another boost to the growing seed industry in the northwestern states. **THE END**

NOTE: If you would like to plant Latar orchard grass on your farm we suggest planting a fraction of an acre first. You can then determine how well it is adapted to your climate and soil conditions.

A number of Midwestern agronomists do not recommend orchard grass because of its winter tenderness on upper-midwest farms. Brome grass is much better adapted to this area.

At the present time, the only area where Latar orchard grass has proven successful is in the Pacific Northwest. Other strains of orchard grass, of course, are popular and proven in the East and Southeast.

—THE EDITORS

"You are 20 minutes late again this morning. Don't you know what time we start work in this office?"

"No, sir. They're always working when I get here."

Keep fertilizer equipment clean

Fertilizer attachments should be treated like a paint brush according to S. L. Vogel, North Dakota state extension agricultural engineer. If cleaned after using, they can be used again. If not, you are likely to run into trouble.

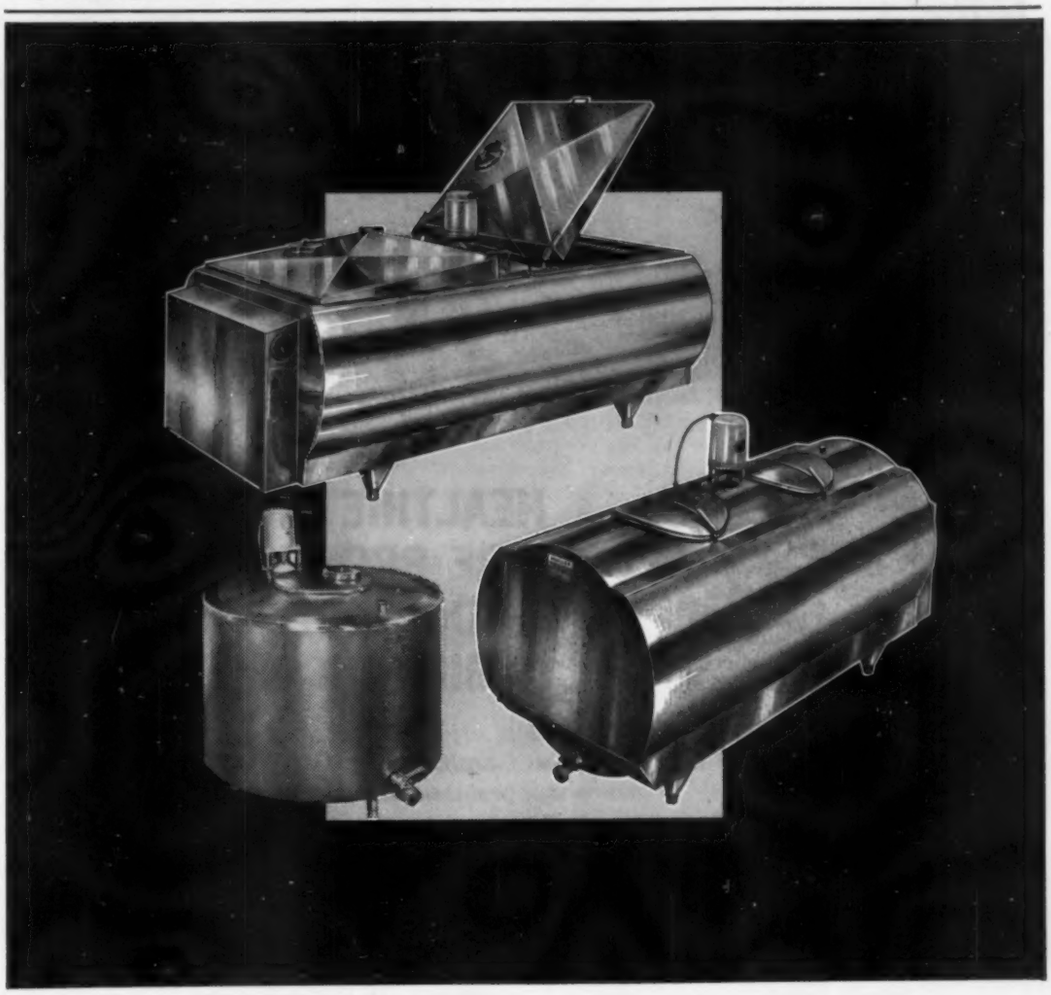
During seeding, if the attachment is going to be used the following day, try to get out all of the fertilizer you can on the last round. Use a tarp to cover the attachment overnight. Remember, fertilizer soaks up water just like table salt.

If the attachment is going to stand two or three days, a fairly good cleaning job with a brush is needed, followed by rinsing everything with water.

Clean all working parts when you are through with the attachment for the season. The parts should be coated with diesel fuel, kerosene, or crankcase oil. Some farmers soak burlap sacks with oil and leave them in the hopper.

Don't overlook the possibility of some bits of fertilizer finding their way into the seeding mechanism of the drill. Some cleaning and oiling of the seeding mechanism may prevent future trouble.

Even careful cleaning isn't going to stop all corrosion from fertilizer usage, but it might make the difference whether or not you will have to buy a new drill or fertilizer attachment next year.



What feature do you first look for in a bulk milk tank?

Is it efficient direct-expansion refrigeration/ built-in control panel/ an oval shape to hold calibration or is it stainless steel construction? Do you look for a self-contained or a remote condensing unit / atmospheric or vacuum model / 3-A standards / greaseless agitator motor or, possibly, a C.I.P. system.

We don't know any one factor that is all-important in choosing a bulk tank . . . but you will find all the above features in the Mueller line . . . they add up to high quality performance in the milk house where it pays off in profits.

Sizes range from 90 to 2000 gallons . . . see your Mueller dealer for the bulk tank that fits your operation.

MUELLER

PM PAUL MUELLER COMPANY
SPRINGFIELD, MISSOURI

Billie Snider, left, and his brother, James, operate Snider Brothers Dairy, Franklin, Ky.

HEALTHIER COWS ARE PRODUCING $1400 ADDITIONAL MILK INCOME

The Sniders attribute increased milk production to improved herd health since using Aureomycin Crumbles— no residue problem during entire 24 months of use

"For an annual investment of $275 in AUREOMYCIN® Crumbles we're getting a return of $1200 to $1400 in greater milk income," reports Billie B. Snider, who operates the 50-cow Snider Brothers Dairy at Franklin, Kentucky, in partnership with his brother, James D. Snider.

"We began using the AUREOMYCIN Crumbles about 24 months ago, and in that time we've seen the milk production per cow increase 10 per cent. This increased production, of course, results from maintaining a stronger, healthier herd.

"In addition, our cattle now enjoy almost complete freedom from foot rot and mastitis.

"Our milk is Grade A and is tested regularly for antibiotic residue. I don't know exactly what these tests are, but we've never had a report of any such residue showing up in milk from our place."

James D. Snider, just quoted, was selected as Kentucky's Outstanding Young Farmer of 1960.

How Aureomycin Crumbles work

AUREOMYCIN has a long-proven ability to fight a wide variety of disease-causing bacteria.

These bacteria, if unchecked, result in diseases that hold a cow back. Sometimes the animal shows the outward symptoms of a specific disease such as foot rot, scours and respiratory diseases.

More often a condition may result known as "hidden disease"—a non-active state which keeps the cow from normal good health and production.

—and in the milking line

AUREOMYCIN Crumbles "can't make more milk," but used regularly with your usual ration, they will control the bacteria that are holding down production—and the active diseases that mean a really sick cow.

Healthy cows are better able to produce to their maximum bred-in milk and profit-making capacity.

Available in 50-lb bags wherever veterinary products are sold. American Cyanamid Company, Agricultural Division, New York 20, N. Y. ®*AUREOMYCIN is American Cyanamid Company's trademark for chlortetracycline.*

The label instructions on Cyanamid products, and on products containing Cyanamid ingredients, are the result of years of research and have been accepted by Federal and/or State Governments. Always read the labels and carefully follow their directions for use.

CYANAMID
AUREOMYCIN
CRUMBLES

CYANAMID SERVES THE MAN WHO MAKES A BUSINESS OF AGRICULTURE

Build a door opener

by D. W. Bates

MATERIALS needed for this milking parlor door opener are two pieces of electrical conduit or pipe of different sizes so that one will fit inside the other, some pieces of light strap and angle iron, and an automobile muffler clamp, in addition to two ropes and some pulleys.

Make a recess in the top of the door casing directly above the point where the doors join. This is to support one end of the smaller pipe, which should be 42 inches long. Support the other end of the pipe with a light piece of strap iron attached to the ceiling.

Over the smaller pipe place a 6-inch length of the larger pipe. Around the larger pipe, near the center, attach the muffler clamp. Then fasten the longer pipe in place leaving the shorter section free to slide on it.

Cut two pieces of light angle iron to a length of 38 inches. Drill a 7/16-inch hole in each end of each piece. Cut two pieces of strap iron to a length of 6 inches. Drill a 7/16-inch hole near one end of each piece. Bend these pieces in a vice so that a length of about 1 inch, having the hole in it, forms a right angle with rest of piece.

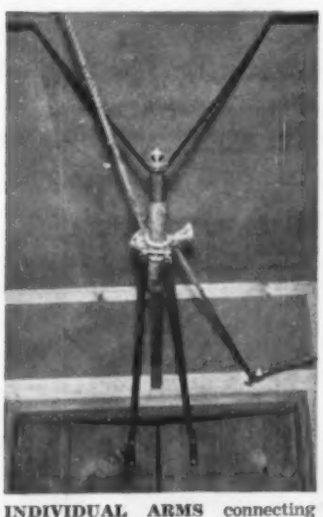
Drill two more holes in each piece through which bolts can be run to fasten them to the doors. Bolt one piece to each door so that the bent part is about 1 inch from the top of the door. The edge of each iron should be about 3 inches from the inner edge of the door to which it is attached.

Use ⅝-inch bolts for pins and connect one end of each angle iron to the metal pieces bolted to the doors. Connect the other end of each angle iron to muffler clamp.

Behind the clamp fasten a light rope. Run it through a pulley attached to the door casing and over to a location where it can be conveniently reached by the operator during milking.

Between the clamp and the door casing attach another rope and run it through a pulley located so that a weight on end will close doors.

The author is an extension agricultural engineer, University of Minnesota.



INDIVIDUAL ARMS connecting doors to a single slide make it possible to open both with one rope. Weight attached to rope in foreground closes the door. Frequent oiling will prevent binding.

You'll be "riding high" harvesting with a Fox Self-Propelled!

Here's Why:

With the Fox Self-Propelled you get a full view of harvesting operation . . . and you ride a full-floating hydraulic seat. No back-wrenching, jostling or bouncing over even the roughest fields.

You'll be operating the finest self-propelled forage harvester in America today. Because the Fox SP-F was designed, originally, to take the punishing 24 hour-a-day custom work demanded in the dehydrating business. You'll find it will last and last through thousands of tons of forage harvesting.

Literally—you'll be "riding high," too. Because the comfortable Fox seat puts you way up front—out of the dust—with a "king of the hill" view of your harvesting operation. You'll open fields without waste . . . cut square corners every time . . . get over 60 tons-per-hour capacity in heavy corn.

Only the Fox Self-Propelled gives you all these extra features for better forage harvesting: variable-action drive to change speed *without shifting* . . . hydraulic controls, easily reached from the seat . . . power steering . . . front mounted drive-wheels that give balance and "float" you through soggy, soft spots . . . exclusive lever selection of cutting lengths, seat-controlled forward-neutral-reverse feed roller.

If you have the urge to own the finest forage harvester ever built, for your own use or for custom work, ask your Fox dealer for a demonstration of the Fox SP-F. Or, for more details, clip and mail the coupon below today. 743

FOX

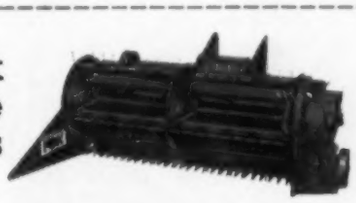
Most copied forage harvester in the field today

FOX RIVER TRACTOR COMPANY
Dept. 28-41, Box 469 • Appleton, Wisconsin

I'd like more forage harvesting capacity. So send me your free booklet "23 Reasons Why Fox is the Best Buy" and detailed information on the ☐ Fox Self-Propelled, Fox Pull-Type harvesters: ☐ Heavy-Duty Custom-7 ☐ Low priced Super-6 ☐ Crop Blowers ☐ Forage Boxes

Name_____
Address_____
Town_____ State_____
I farm_____ acres ☐ I am a student

Fox Quick-Change Attachments



6 and 7-foot mower bars

1 and 2-row corn units

No need to get skinned knuckles or waste time lining up stubborn bolt holes with Fox quick-change harvest units. Simply drive up to attachment . . . swing it into place . . . and crank-tighten the exclusive T-Head bolts. Pulls whole unit into perfect alignment . . . quickly, easily. Let's you change from one crop unit to another in less than 10 minutes.

Pick up unit

FEEDING

by J. K. Loosli

Forages supply more protein

There is a difference, though, in how cows use it. Nitrogen in silage is used less efficiently than in freshly-cut forage.

IN THE last 25 years many dairy farmers have changed from grass hays to alfalfa and other legumes. Legumes usually give larger yields of better quality forages and cows eat more of them. There has been a great increase in amount of protein furnished by legumes.

More recently the use of heavier applications of nitrogen fertilizers has increased the protein content of non-legume forages. Furthermore, earlier harvesting results in a higher protein content as well as more digestible energy.

During the past quarter century the protein content of what is normally referred to as complete commercial dairy feeds has been lowered from 20 and 24 per cent to 16 and 18 per cent. This is in keeping with improved forage quality.

For some dairymen protein supplement is about their only purchased feed, but many buy complete grain mixtures. An 18 per cent feed often costs no more than one with 14 or 16 per cent protein.

When cows are fed early-cut alfalfa hay as the only forage they may not need extra protein. When fed along with rolled barley or oats or ground ear corn the ration is adequate to meet energy and protein needs for average production. For example, a 1,400-pound cow producing 55 pounds of milk testing 3.6 per cent needs 3.1 pounds of digestible protein and 25.0 pounds of TDN per day. Examples of rations which will furnish these nutrients are shown below:

	Dig. protein	TDN
Requirements	3.1	25.0
Alfalfa hay, 35 lbs. plus barley, 12 lbs.	4.9	26.9
Alfalfa hay, 35 lbs. ground ear corn, 12 lbs.	4.3	26.4
Grain mixture, 16% protein, 12 lbs.	5.0	26.4

Feeding rolled barley or oats or ground ear corn to supply extra energy will balance the alfalfa hay. A mixture of grain and high-protein concentrate containing 16 per cent crude protein furnishes much more protein than the cow needs in this instance.

With high-quality forage many dairymen are getting good production with only barley or ear corn.

Some believe that high-producing cows need more variety than is provided by a single grain and hay. This question has not been studied in long-time, well-controlled experiments using cows that produce above 15,000 pounds of milk or 600 pounds of butterfat, so there is no good basis for deciding the answer.

Silage protein less useful . . .

At the Ohio Experiment Station, Drs. Conrad and Hibbs studied protein utilization in silage, fresh-cut forage, and hay. At higher levels of intake, silage nitrogen was less efficiently utilized than was nitrogen from fresh-cut forage, while hay compared favorably with fresh-cut forage. Nitrogen was better utilized when a ratio of 3:1 forage to grain was fed.

The Ohio workers do not explain why silage protein is not used as efficiently as that from fresh-cut forage. From their results, however, a little extra protein in the concentrate will easily compensate for the poorer results so silage may be fed at usual recommended levels.

Corn silage plus urea . . .

These same men studied corn silage to which was added 10 pounds of urea per ton of fresh corn at the time of ensiling. The urea-treated corn silage contained 12.9 per cent crude protein when it was fed compared with only 7.6 per cent for untreated corn silage, both on a dry basis.

A group of milking cows was fed the urea-treated corn silage alone to test its digestibility and nutritional value. A second group received an equal amount of crude protein from alfalfa hay and grain. The milk yields and digestibility of the feeds are shown in the table:

	Urea-treated corn silage	Alfalfa hay plus grain
Milk production, lbs.		
Before trial	26.7	24.2
Last 10 da. of trial	23.4	28.3
Protein dig., %	65.4	65.5
Nitrogen ret., %	8.1	22.0

On the urea-treated corn silage cows produced less, but on hay and grain they increased production. Digestibility of the crude protein in the two rations was the same. However, the nitrogen furnished by the crude protein of the urea-treated corn silage was poorly utilized. Most of the urea nitrogen was absorbed, but promptly excreted in the urine instead of being used for synthesis of milk protein. Thus, the cows suffered from a protein deficiency.

As the Ohio workers point out, if some corn meal had been fed to the cows receiving corn silage, the urea would certainly have been utilized much better. The grain in the corn silage had been largely fermented to fatty acids. Therefore, the needed amount of starch was not available to aid rumen bacterial use of the urea and ammonia in the corn silage.

One can suspect, therefore, that feeding a few pounds of ground ear corn or other high starch feed would have resulted in better milk production than was observed in the Ohio test.

Furthermore, corn silage alone is too low in energy to be used without a grain mixture for milking cows. A lack of energy decreases nitrogen utilization and causes milk production to drop.

Other studies have shown more favorable results with urea-treated corn or sorghum silage when fed in a better balanced ration. Since there is some loss of urea in making silage, it would be better to add urea to a mixture of cereal grains to help overcome a protein deficiency than to add it to silage.

BEAT THE COMPLETE

Ford Hay Conditioner—Expect to bale a day earlier . . . count on cutting curing time up to 50%. Put more good hay in the bale before it fades in the sun! Ford's channeled steel rolls crimp—they don't crush. More stems are cured with nutritious leaves undamaged and still attached. Ford's adjustable hay deflector means fluffier hay for faster drying. Works better in heavy stands, too! Adjusts to 1½-inch ground clearance. Rolls release fast for safety.

Now you know a few of the reasons why Ford hay conditioners are so outstanding. Perfect mates for America's fastest selling mowers. Your choice of a semi-mounted model for use with Ford mounted mowers. Or a full trailing model for use with any PTO tractor. See one at your nearest dealer's soon . . . liberal Pay-As-You-Farm credit terms available. Be ahead of the weather with Ford!

Shift to any speed on the go . . . up or down! Ford Select-O-Speed, greatest helper in the hay field! Six ground speeds of 4 m.p.h. or less, plus independent PTO, adds up to the best PTO advantage yet for hay tools. A simple twist of the wrist changes ground speed according to the crop without stopping. Maintains PTO and implement at correct operating speed. Do a better job faster, ten speeds forward, 2 in reverse.

Ford Motor Company

SEE YOUR NEARBY FORD TRACTOR AND IMPLEMENT DEALER

WEATHER WITH FORD'S HAYING LINE!

Ford semimounted hay conditioner, rear mounted mower and 3-4 plow Select-O-Speed tractor . . . perfect haying team!

Ford 150 hay baler—The answer to a real need . . . a new practical size baler for smaller hay crops. Low in cost, yet rugged in design—includes many of the farm proved features found in other Ford balers. Plenty of capacity for hurried "beat-the-weather" baling. Bales up to 8 tons of hay per hour! And it's compact—perfect for sharp turns in tight places.

Ford 250 hay baler—Dependable 10-ton per hour capacity. Gentle leaf-saving action, including sweep fork feed, handles hay carefully right through to the bale. Sure tying with improved Ford knotters—fewer loose bales. Simple construction—up to 30% fewer wearing parts—insures less maintenance. Your choice of power take-off or engine models, twine or wire tie.

Ford rear mounted mower—Fast haying pays. Get a good start with a Ford. The 8-foot model will mow nearly 6 acres per hour. There are 6- and 7-foot models available, too! All are designed for narrow or wide tractor wheel spacings. They're full adjustable, have high lift . . . also safety releases. You'll like the easy 3-point hitch, smooth V-belt drive.

Ford mounted side delivery rake—Handy pick-up-and-go rake for faster haying! This one "rides" to the field fast . . . can be quickly raised over obstructions to prevent damage when raking . . . can be backed into tight spots without jack-knifing. Eight-foot raking width allows 4 acres per hour capacity. And you save more leaves with less hay movement from swath to windrow.

All soil needs organic matter

(Continued from page 349)

(commonly called humus) that had been serving as cement within the soil aggregates. Tilth then begins to disappear and more fresh organic matter is needed. This cycle takes place within a period of a few months.

The feeder roots of plants (root hairs) are short lived. They slough off and quickly decompose. Likewise lower leaves and branches fall or touch the soil and are attacked by various bacteria and fungi, all a part of the great micro-population which we have here called microbes. This is the reason why the continuously growing grasses bring about a good physical condition, really the ideal condition of tilth.

Manure is top source . . .

Dairy farmers should have no difficulty in keeping soils in a good state of tilth because stable manure is an excellent source of organic matter. Futhermore, it gives them flexibility; they can spread it where and when it is most needed. On some farms, this is on the hilltops and slopes and on problem areas such as sands or extremely tight clay soils.

Stable manure management on many farms, however, can stand a lot of improvement. Roughly, 50 per cent of the nitrogen and 70 per cent of the potassium excreted by cattle is in the liquid fraction. Much of the liquid is lost in yards and lanes and a lot of organic matter decomposes in barnyard piles, especially when it is left for summer application.

The farmer who says his spreader has only one speed, wide open, is making a mistake unless he has so much manure that getting rid of it is a problem. **Experiments have shown us that light, frequent applications are more effective than heavy applications many years apart.** Perhaps four to six tons an acre is the most practical rate.

If dairying is your major enterprise, you probably have enough manure to cover all corn land and part, or all, of your grain land, if the spreader is set on the lean side. Plowed under, this will feed the microbes during most of the season because some decomposes quickly, some lasts much longer. Don't depend too much on manure, however. It really isn't sufficient to provide the whole ration.

Your organic matter calendar should provide for at least three additions each year, one for each of the growing seasons, spring, summer, and fall. Cover crops and green manures are very important. Soil should never be bare.

Pounding rain destroys aggregates and causes erosion from bare land. In addition, the organic matter from a cover crop, tops and roots, may amount to a ton or two of dry matter per acre.

Rye in corn is also a good deal. It may be used also for several days of spring pasture and still leave enough to feed the soil bacteria for quite a spell after it is plowed under.

Crop residues good . . .

Any crop residues which may be plowed under will feed the countless microorganisms and thereby help to promote the good soil tilth which we all associate with dark-colored soils. Cornstalks, straw, second or third growth hay, even weeds should be carefully returned to the soil.

Commercial fertilizers play an important role in feeding soil microbes. A 100-bushel corn crop supplies twice as much residue as does a 50-bushel crop. A quite similar ratio holds also for small grains. In other words, the better the crop, the more residues are left in the field and the better the soil becomes.

Some agronomists are even thinking that corn, long considered and proved by field tests to be soil depleting may become soil building if the yield is high enough and all residues, including cobs, are returned to the soil. With the use of plenty of mineral nutrients and nitrogen, and assuming erosion is held to allowable limits, they may be right. For the time being, however, this writer would hedge a little and suggest the addition of a cover crop and an occasional covering of manure.

You dairy farmers "have it made" so far as soil maintenance is concerned. Legumes, especially alfalfa, are still the best of all soil building crops. They are not good cash crops, however, so the cash crop farmer writes them off. He may be able to maintain top yields without them, but it isn't easy and it costs him money.

You people with cows, though, need hay and you know there is none better than alfalfa. Soil microbes also like alfalfa and our tests show that soil structure is best after this crop.

As long as you intend to grow alfalfa for hay, your best bet is to stick with rotations. Corn yields are highest after alfalfa and the grain in between gives you a chance to reseed the meadow. Remember, also, that alfalfa adds little in soil building after the first year of harvest so don't leave it long. Seed another field and plow the old one while it is vigorous. That is when it does the most good to the soil.

Of course, if most of your land is hilly and you have only a few acres of real good valley land, perhaps you should rotate small grain and alfalfa on the hills and raise continuous corn on your valley acres. In that case, put plenty of manure on the valley corn land, plant a cover crop, apply enough

Another 'copter report from Kraft

"SELLING MY WHOLE MILK FOR 2½ TIMES KAFF-A COST!"

mineral fertilizer and a pound of nitrogen for every bushel of corn you take off and you need not worry about soil depletion.

Be sure your tillage methods are up-to-date. Compaction is holding down yields on many farms. Soils should be as loose as possible and still get quick and complete germination. Seedbeds should be firm but root beds should be loose. Planting in tractor wheel tracks on freshly-plowed land gives this ideal condition.

The moldboard plow is the best tillage implement ever devised. Properly adjusted it can do the entire job. The lifting, twisting action caused by a short moldboard crumbles the furrow and leaves it in ideal condition for roots and microbe activity and for intake of rainwater. Water does not readily run off a loose soil; it falls into the cracks and holes and is trapped.

Furthermore, loose soils hold water against loss by evaporation. This is because the loose surface quickly dries to an inch or so; then it serves as a dry mulch to stop any further loss of the water lower in the soil. Weeds start slowly in the dry surface layer.

The farmer who has "thrown away" the moldboard plow has, in my opinion, made a sad mistake. Power measurements show it to be the cheapest method of putting soils into condition for planting. The plow and a light tillage implement attached can do all the tillage needed for maximum yields of corn on any soil from the lightest sands to the heaviest clays.

Don't set the stage for high yields by a good organic matter maintenance schedule, then undo much of the good by the excessive packing caused by several workings with tractors and tillage implements. Work the soil as little as possible and get a good stand of whatever crop is being grown. That is **minimum tillage**, and you will be well paid.

THE END

Customer: "What! $500 for that antique? Why, I priced it last week and you said $350."

Dealer: "Yes, I know; but the cost of labor and materials has gone up so!"

Western Dairy Center to move to Utah

The Western Dairy Research Center of the U.S. Department of Agriculture will move from Huntley, Mont., to Logan, Utah, in early April. The U.S.D.A. dairy herd of about 125 animals will be combined with the Utah State University dairy herd, Dave Kopland, who has been in charge of the Huntley herd for more than 30 years, will move with them.

The new cooperative research dairy herd will be under the direction of Dr. George E. Stoddard, head of Utah State dairy department. Added to the staff will be a U.S.D.A. nutritionist.

Dr. Stoddard explained, "The combined herd will total 350 animals with about 180 of them milking. To accommodate the additional cows we are developing new facilities at the university dairy farm. For the studies we will be able to have as many as 96 cows and 30 heifers on individual feeding tests at a given time. This will be the largest individual dairy feeding research unit I know about."

When inspecting the facilities at the university farm before moving the U.S.D.A. herd, Dr. Joseph Sykes, head of the dairy research branch at Beltsville, Md., said, "I'm very impressed with the facilities here. We can intensify our efforts in breeding and feeding dairy cattle for increased efficiency. Since our aim is basically the same as the research program at U.S.U., we can, by pooling our efforts, develop information that is applicable on a regional and national basis."

Immediate research efforts at the regional center will be directed to studying cows' inherited ability to produce milk on a high roughage ration as compared to a more standard ration of hay, silage, and grain.

"We will also study various aspects of forage utilization in both summer and winter," Dr. Stoddard said.

Logan has been selected as the site for the center, he explained, because it is an ideal place to study dairy cattle in an irrigated farming situation.

LAYING PLANS for expanded dairy research at Utah State University are Dave Kopland, Charles Mickelsen, George Stoddard, and Joseph Sykes. Forage utilization will be the primary early research effort in the combined U.S.D.A. and Utah State University dairy research herd.

Farmer pulling with one mule: "Giddap Peter! Giddap Barney! Giddap Johnny! Giddap Bill!"

Stranger: "How many names do you have for that mule?"

Farmer: "His name's Pete, but he don't know his own strength, so I put blinders on him, yell a lot of names, and he thinks other mules are helpin' him."

Every time Kraft Flying Farm Reporters check the use of Kraft milk by-product feeds, the figures are a little different, but the story is always the same: Kraft feeds really pay off! Here's a case where Art Bauman of Burlington, Wisconsin, fed fourteen calves Kaff-A Milk Replacer for two months, much to his profit.

"The Kaff-A cost me only $110.60," Bauman told Kraft Reporter Bob Reimers. "But I saved around 7,000 pounds of milk. I sold it at $4.00 a hundred, bringing me a total of $280.00. So you can see that the selling price is more than 2½ times the cost of the Kaff-A and the $170.00 saving is one of the reasons I've been feeding Kaff-A Milk Replacer for eight years."

Bauman also fed Kaff-A Booster Pellets to his milking herd. Results: "Much better roughage consumption while feeding the Pellets, and cows produce more milk," says Bauman. Cows on Kaff-A Booster Pellets eat more hay and pasture, and fully digest their grain ration.

These are the results *you* can expect with the high-quality milk by-product feeds by Kraft. Ask your dealer about the Kaff-A lifetime feeding program and find out how you can increase your dairy profits.

SAVINGS OF $12 PER CALF Here, Art Bauman's son Richard is feeding a calf Kaff-A Milk Replacer. On fourteen calves like this one, Mr. Bauman saved an average of $12 each by feeding Kaff-A and selling his whole milk. Kaff-A gave his calves a naturally balanced liquid ration and produced beautiful, growthy animals. Also an aid to herd health, Kaff-A eliminated a scours problem for Bauman. Calves on whole milk were scouring, but since he switched to Kaff-A, there has been no scours problem.

BIG ANIMALS, BIG MILK PRODUCTION Bauman shows Kraft Flying Farm Reporter Bob Reimers his herd of milk cows, all of which were raised on Kaff-A milk by-product feed by Kraft. "Kaff-A not only helped me raise big, growthy heifers," Bauman says, "but the individual cow size is larger, too. And my 32-cow herd last year averaged 12,000 pounds of milk sold per cow." Thus, like other Kaff-A users, Bauman found that Kraft milk by-products gave him better production and animal health as well as economy.

PROGRESSIVE KRAFT FEED DEALER Willard Agnew of Burlington Consumers Co-Op talks about the profitable results of the Kaff-A lifetime feeding program with Kraft Reporter Bob Reimers. The Co-Op sells both Kaff-A Milk Replacer and Booster Pellets to Bauman and other dairymen in the Burlington area.

KAFF-A

A MILK BY-PRODUCT FEED BY

KRAFT

the same people who bring you Velveeta cheese spread and Miracle Whip salad dressing

KRAFT FOODS AGRICULTURAL DIVISION • Chicago • New York • Garland, Texas • San Francisco

Establish legumes with herbicides

Which ones are safe? How should they be applied? Here are the answers. *by Elroy J. Peters*

FARMERS interested in controlling weeds in legume seedlings may ask what herbicides can be used safely, what can be expected of herbicides, how to apply them, and what they cost.

We must consider what the legume is going to be used for. This is important because herbicides are registered for certain uses. Before a herbicide is registered it is carefully checked to make sure that it will not be harmful to animals or humans if used in a certain manner. For this reason, it is important to read the directions and apply as directed.

A number of herbicides have given good results, but only a few of them are presently registered for specific uses on legumes.

Research work at the University of Missouri and elsewhere indicates that herbicides substantially reduce the prevalence of weeds in legume seeding and often virtually eliminate them.

Experimental studies show that one to three cuttings of hay may be taken during the seedling year when legumes are planted in the spring without a companion crop and when weed competition is reduced by use of herbicides.

EPTC (ethyl N, N-di-n-propylthiolcarbamate) is the only herbicide that presently meets the pesticide regulations for use on forages used for feed as well as for seed; however, a waiting period of 60 days after application is required before the forage can be fed to livestock.

Experimentally EPTC has been used successfully on alfalfa and birdsfoot trefoil. In a few cases it has caused some injury to red clover, and more work is needed to determine if it can be used safely.

The most economical treatments with EPTC are pre-planting ones. After the seedbed is prepared, the material is sprayed at the rate of one to three pounds per acre.

Disking or harrowing should follow spraying to work the herbicide into the soil to a depth of about two inches. After the material is worked into the soil the legumes can be sown.

Presently a new chemical 4-(2,4-DB) [4-(2,4-dichlorophenoxy) butyric acid], may be used to control broad-leaved weeds in seed crops of alfalfa, birdsfoot trefoil, red clover, and Ladino clover. Rates generally used range from one-half to one and one-half pounds per acre of the amine formulation.

The 4-(2,4-DB) can be sprayed when weeds range in size from 1 to 15 inches. Small weeds are more easily killed than large ones, and the herbicide rate should be increased as the weeds become larger. **At present 4-(2,4-DB) cannot be used in forages grown for grazing or hay.**

Dalapon . . .

Another herbicide that can be used on seed crops only is dalapon, (2,2-dichloropropionic acid). If grassy weeds, as well as broad-leaved ones, are a problem, dalapon can be mixed with 4-(2,4-DB) to control both kinds of weeds in alfalfa and birdsfoot trefoil.

Sometimes when a heavy canopy of broad-leaved weeds is present, weedy grasses are not troublesome, but they may come in after other weeds are removed. In this case, dalapon can be applied later in the season.

The best control of weedy grasses is generally obtained by applying dalapon before the grasses have more than two leaves. Three pounds of dalapon per acre give good control of weedy grasses without injury to birdsfoot.

Alfalfa is somewhat more sensitive to dalapon than birdsfoot trefoil, and two pounds per acre have been best under Missouri conditions. Dalapon severely injures red and Ladino clovers and should not be used on them.

Many of the herbicides listed are expensive, but there are indications that prices will be reduced if their use becomes more widespread. Approximate costs per pound of active ingredients at present are EPTC $4. dalapon $1.38, and 4-(2,4-DB) $3.50.

Calibrate with care . . .

The herbicides mentioned are usually sprayed in water solutions. Care must be used to calibrate the sprayer so that the gallonage delivered per acre at a given tractor speed is maintained as constant as possible.

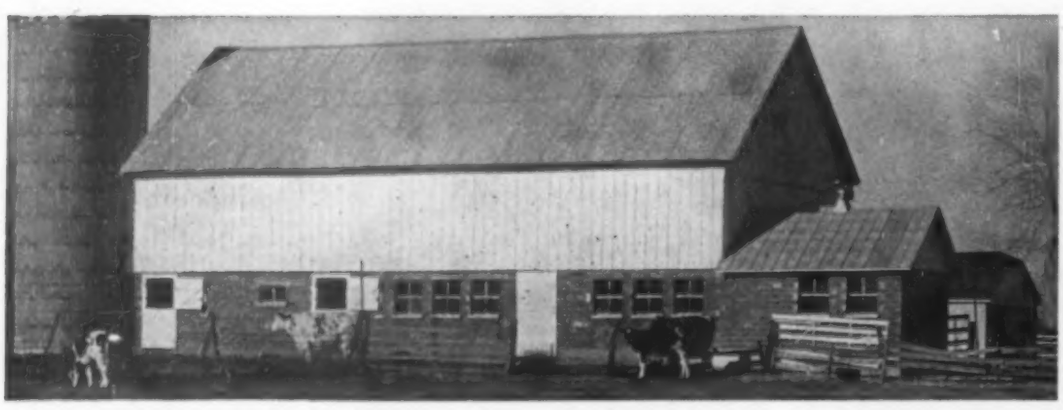
Recently granular herbicides have become available. These materials must be applied with applicators that will apply small, uniform amounts of herbicides. Some granular applicators are appearing on the market. Results from the preliminary work with granular materials as pre-planting and pre-emergence herbicides are not conclusive as to whether consistently good results can be obtained.

Results with herbicides are no better than the procedures used in applying them. The main objective is to apply a proper rate of the herbicide uniformly over the field.

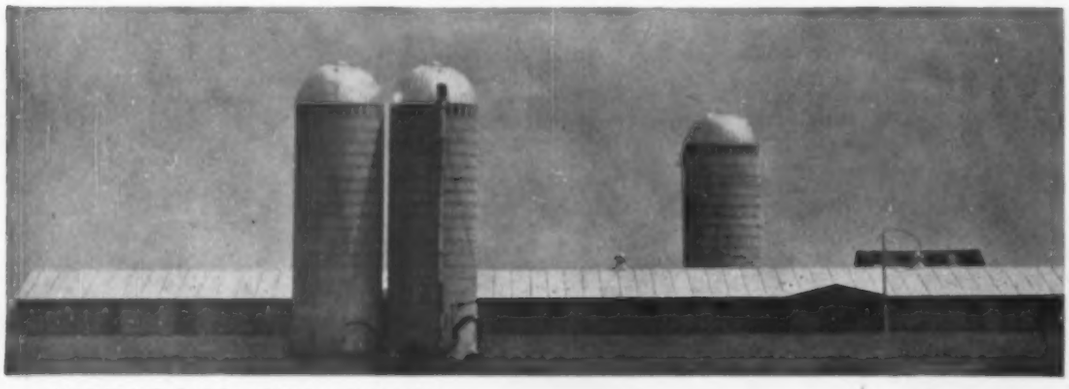
The author is research agronomist, Crops Research Division, Agricultural Research Service, U.S. Department of Agriculture, University of Missouri.

MASONITE Farm Quiz

Two dairy barns...same amount of milk... what's the difference in work?



THIS OLD-STYLE DAIRY BARN—typical frame construction—no insulation, no vapor-seal. The rough walls are hard to paint, harder to keep clean. A dairyman spends two to four hours a day here, slows down in winter cold. Labor costs climb another peg. The solution can be found in Building No. 2.



MASONITE PANEL SYSTEM BUILDING saves labor. Insulated and vapor-sealed side walls and ceiling keep you warm in winter, cool in summer. Smooth, time-tested Masonite hardboard panels inside and out are easy to paint, easy to clean. They're really tough, too—take hard knocks and severe weather. Get a Masonite Panel System building for labor savings and upkeep economy.

All round the farm

MASONITE

shows the way

MASONITE CORPORATION
Dept. HD-410, Box 777
Chicago 90, Illinois

Please send FREE booklet on profitable dairy housing.

Name.....

Address.....

Town.....*State*.....

Route.....*County*.....

Masonite Corporation—manufacturer of quality panel products for building and industry
Masonite is a registered trade-mark of Masonite Corporation

More power . . .

(Continued from page 351)

by water that may condense in the fuel.

The oil burning engines are economical on light jobs, too. When choring, hauling to and from the field, and other light work, the engine loafs along on a minimum of fuel. And, when the going gets tough, they have extra power.

Don't worry about diesels not starting. New diesels now on the market will kick off on a cold winter morning about as well as any other engine. Some of the old ones weren't too dependable, but engineers remedied this problem by designing starting aids.

Some drawbacks . . .

Diesels and LP-G's have some disadvantages. Engineers point out that a diesel engine doesn't have as wide a useful revolution-per-minute range as gasoline engines. They run best at a fairly constant speed near the top end of the throttle range.

Repair facilities aren't always available either. Although more shops are becoming equipped to handle this type of repair work, they are still scarce in some areas.

Fuel economy of some LP-G's used at part load is relatively poor. However, a factory LP-G tractor or a properly-converted one will do much better than a low-cost spud-in adaption.

The LP-G supply tank is much more expensive than for gasoline or diesel fuel. In fact, many times LP-G tractors are recommended only if the fuel is also used for home heating or crop drying.

However, the powerful LP-G's and diesels have many advantages over the gasoline tractors. They are more durable, cheaper to operate.

If you use a tractor at least 700 or 800 hours a year, take a careful look at the economics of owning a diesel. Or, if you use LP gas on your farm, consider converting to or buying tractors that burn this type of fuel. Those farmers who work their tractors hard and for long hours will find them ideal. **THE END**

Raise dairy calves on pasture

According to M. E. McCullough of the Georgia Experiment Station experiments in England and at the Georgia station revealed that calves fed high-quality grass from a week of age were able to digest forage as well as older animals by the time they were 4 to 6 weeks old. Internal parasites proved to be no greater problem than with older animals.

The first American work was apparently done at the Georgia station. Calves on high-quality pasture alone grew as well as barn-fed calves on hay and grain. Similar work at Purdue compared three groups, barn fed, pasture, and pasture plus hay free-choice. Average daily gains to 60 days of age were 0.97, 1.14, and 1.10 pounds for the respective groups.

The key to success was high-quality forage. In the Georgia work, calves on poor pasture with heavy grain feeding did not gain as well as the barn-fed groups. The importance of forage quality for young calves is further emphasized by recent feeding trials at Cornell.

Growing calves receiving late-cut hay and 4 pounds of grain per day did not gain as well as similar calves fed early-cut hay and 2 pounds of grain per day.

that's almost impossible to plug!

NEW IDEA HAY CONDITIONER'S FREE-FLOW DESIGN has a more aggressive, plug-free feed-through than any other conditioner. It's not just a crimper or a crusher, but a combination of the best of both methods. It combines a big, self-cleaning rubber roll . . . and a steel pick-up roll with staggered flutes that are tapered at the end.

The result: you get faster, more even curing and leafier hay in at least one less day. Yet the tender touch of *this* conditioner means less damage to the leaves, less leaf loss.

Balanced for easy one-man hook-up, NEW IDEA Hay Conditioner can be hitched behind a NEW IDEA semi-mounted mower for once-over mowing and conditioning. And the rugged, rock-proof roll design kicks large rocks out of the way and allows small rocks to feed through without damaging rolls.

See your NEW IDEA dealer today for the hay conditioner that's next to impossible to plug. Or mail the coupon for free literature on NEW IDEA Hay Conditioners and the free Hay Conditioning Profit Calculator.

—MAIL THIS COUPON TODAY—

NEW IDEA, Dept. 166
Coldwater, Ohio

Please send me:

☐ Hay Conditioner Literature ☐ Hay Conditioner Profit Calculator

NAME_____

ADDRESS_____

TOWN_____ STATE_____

PRODUCT OF AVCO CORPORATION

NEW IDEA

THE ONE AND ONLY BALER

THAT ENDS DAILY GREASING!

Here's the big baler that puts you first in the field—the Massey-Ferguson 10. The baler that's hard at work—and tons ahead—while the others are still being greased. The baler that's got the high capacity to keep you ahead—all day long—with its wide 56-inch pick-up . . . smooth, gentle leaf-saving action . . . famous sure-tie knotter . . . and long-lasting factory-sealed bearings throughout! There's never a stop or a slow-down for bearing inspection or grease. The lubrication is sealed in. All dust and dirt are sealed out. Meanwhile, the MF 10 gives you uniform, securely tied bales without a miss. Any length you want from 15′ to 50′. Any heft up to 65 lbs. For big acreage land or family-size farms, here's baling at its all-around best! And it's available with PTO or engine drive, and your choice of easy time payment plans. It's the finest, fastest baler you can buy—the modern, work-saving Massey-Ferguson 10!

Look, Compare...Massey-Ferguson World's Largest Manufacturer of Tractors and Self-Propelled Combines

Does your soil need water-soluble phosphorus?

Most soils do. However, when fertilizer is mixed with soil before planting, non-water-soluble phosphorus is preferred.

by A. J. Ohlrogge

THE following questions and answers may help you decide whether or not the fertilizer you are buying has enough water-soluble phosphorus to take care of your plant needs.

Why is solubility important?

Because occasionally it can make the difference between soft corn and dry corn at harvest. It also can make the difference between vigorous winter-hardy wheat and unthrifty, weak, easily-killed wheat.

How much of the phosphorus in a fertilizer is water-soluble?

It varies widely with the fertilizer material and process used in preparing the fertilizer. It can range from less than 10 to as much as 100 per cent water-solubility.

How is the phosphorus content of a fertilizer measured?

The analysis on a fertilizer bag gives the per cent by weight of available plant nutrients. The so called available phosphate (middle figure on bag) is that amount which the chemists extract with a solvent (normal ammonium citrate). There are many other possible extractants.

Why was ammonium citrate chosen as a solvent?

Research has shown that it gives a good over-all indication of the availability of a phosphate material to the plant. Water-soluble phosphate (W.S.P.) however, is a better indicator in some cases.

Is ammonium citrate soluble phosphate C.S.P. also water-soluble?

All water-soluble phosphorus is citrate soluble; not all citrate soluble phosphorus is water-soluble.

Under what conditions is water-soluble phosphorus a better indicator of the amount of phosphate that will be used by the plant than citrate soluble phosphorus?

This depends on how, when, and where the fertilizer is to be used. For band fertilization of crops that are weak feeders on phosphorus during early growth, like wheat, corn, and tomatoes, water-solubility is a much better indicator of phosphate availability than citrate solubility.

High water-solubility of the phosphorus also is preferred in fertilizers applied broadcast on established legumes and grass sods.

How much of the non-water-soluble available phosphorus in a band application is used by the corn crop?

It is difficult to give a precise answer. Research with radioactively tagged fertilizers on soils of pH 5.8 to 6.8 indicate that the non-water-soluble available fraction is between one-half and one-sixth as available as the water-soluble phosphorus. The difference in calcareous soils (pH above 7.5) is even greater.

Does the non-water-soluble available fraction have greater residual effect on subsequent crops?

Yes; most research indicates this.

Where is non-water-soluble available phosphorus preferred?

Wherever the fertilizer is to be intimately mixed into the soil before the crop is planted.

Do any states require the labelling of the fertilizer for water-soluble phosphorus?

No.

What fertilizer materials are high in water-solubility?

Both 20 per cent and 40 to 48 per cent superphosphates are almost completely water-soluble. So are the ammonium phosphates.

Which materials are low?

Metaphosphates, dicalcium phosphate, and rock phosphate contain very little water-soluble phosphate. The meta and dicalciums are citrate-soluble, whereas the rock phosphate contains very little citrate-soluble phosphate.

What about the mixed fertilizers, such as 0-20-20, 5-20-20, 12-12-12?

Practically all mixed fertilizers containing no nitrogen will have 90 to 100 per cent water-soluble phosphorus. Also in this class will be found the ammonium phosphate, 11-48-0, 21-53-0, and the complete fertilizer where phosphorus is present as ammonium phosphates or monocalcium phosphate.

How can you tell if a complete fertilizer is high or low in water-soluble phosphorus?

Except for high nitrogen fertilizers such as a 12-12-12 prepared by the nitric acid acidulation of rock phosphate, most complete mixed fertilizers have over 50 per cent water-soluble phosphorus. Other 1-1-1 ratios made up of ammonium phosphate are usually 90 to 100 per cent water soluble. Most manufacturers know the water-solubility of their fertilizers.

Does the average mixed fertilizer applied in bands at planting supply enough water-soluble phosphorus?

This depends on the rate of application, per cent, W. S. P., and need. The need is 4 pounds of W. S.P. per acre. It can be supplied by x pounds of 100 per cent W.S.P. material or almost twice as much material that is only 50 per cent water-soluble. Fertilizers with over 50 per cent W.S.P. supply adequate phosphate when applied at the rates recommended by the state experiment stations.

Where does the non-water-soluble phosphorus do the best job?

Non-W.S.P. that is citrate-soluble is better than water-soluble for broadcast applications that are worked into the soil. Also, the non-W.S.P. is used from the band applications, but much less effectively.

Does the non-W.S.P. in the band feed the plant late in the season when the W.S.P. is exhausted?

There is little evidence to indicate this is the case. Unused residual phosphorus will build up the phosphorus level of the soil.

The author is a professor of agronomy at Purdue University.

Builds beautiful heifers for a dime a day!

DUANE GREEN, of Green Meadow Farms, Elsie, Michigan, has used Albers Calf Manna for years. "It's the economical way to raise calves. Just 1 pound of Calf Manna a day develops calves fast. I'm very satisfied with the results." Calf Manna sends heifers to the string months earlier—for less than 10¢ a day!

36 PAGE BOOK TELLS HOW GREEN MEADOW DOES IT!

PLUS THIS SET OF 30 FARM NEEDLES

Shown half actual size.

30 needles for every farm need. Including 4" carpet or sack needle; 3" needlepoint needle, 5" upholstery needle, two 4" leather needles, and easy-to-use needle threader.

This new book includes 8 easy ways to cut calf rearing costs, rumen research, feeding and disease prevention.

A $1.00 VALUE *BOTH FOR ONLY 10¢*

DEPT. H-41
ALBERS MILLING COMPANY
1016 Central St.
Kansas City 5, Mo.

Please send me Farm Needle Set and 36-page book.
I enclose 10c to cover postage and handling.

NAME_____
ADDRESS_____
CITY_____ STATE_____

BEST ELECTRONIC SPRAYER

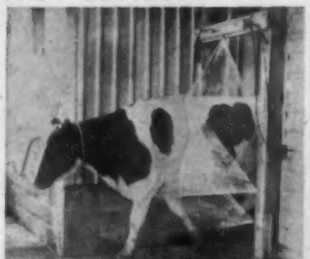
Worden's Electronic Controlled Sprayer brings an entirely new and modern method of applying insecticide to the animal. This sprayer is operated automatically as the animal passes through the applicator and receives 100% coverage. Should the animal stop in the applicator, the sprayer automatically shuts off until the animal moves on. Give your cattle a chance to treat themselves with the correct insecticide that gives the best results for the control of lice, ticks, mosquitoes, flies, horseflies, face flies, screw worms, mites, gnats and other pests.

The chemical for Dairy is recommended by entomologists and approved by the pest control of the United States Department of Agriculture, and all Dairy Associations. You can increase your milk production without expensive equipment, and an insecticide to give you results that you have been looking for.

Our Spray Unit, this year, consists of a non-rustable fiberglass container, and entirely new electronic controls. We guarantee our sprayer to function properly if you use the chemical we recommend.

The Sprayer is available in two different sizes, one for small herds up to 30, and another for herds of 30 or more. To prove our chemical, we furnish the concentrate for you to mix 15 gallons of insecticide, free of charge with each unit, freight prepaid. The concentrate is given to you, to prove that the insecticide which we supply, will give you the best control at a lower price.

WORDEN MANUFACTURING COMPANY
P.O. Box 517 Grand Island, Nebraska



Worden Manufacturing Company
P.O. Box 517 Grand Island, Nebraska
Please send full information and free literature on Electronic Sprayer.
I have _____ Dairy Cattle
I have _____ Beef Cattle
I have _____ Hogs
Name _____
Rural Route _____ Phone _____
Town _____ State _____

NO HORNS!

One application of Dr. Naylor's Dehorning Paste on horn button of calves, kids, lambs—and *no horns will grow.* No cutting, no bleeding. 4 oz. jar—$1.00 at your dealer's, or mailed postpaid.
H. W. NAYLOR CO.
Morris 12, N.Y.

Dr. Naylor's DEHORNING PASTE

SAVE UP TO 50%
on NATIONAL BRANDS of Watches, Binoculars, Luggage, etc.

RUSH $1.00 FOR DISCOUNT CATALOG AND LEATHER GIFT WALLET

FIDELIS WHOLESALERS
Box 224, Niagara Sta,. Buffalo, N. Y.

Buy From Our Advertisers . . . They Are Reliable.

ARTIFICIAL BREEDING

How long can frozen semen be stored?

by H. A. Herman

Cows have been settled with semen that is six and seven years old. But should dairymen rely on stored semen too heavily?

NO ONE can say with authority just how long frozen bull semen can be stored. This phase of artificial insemination is only about eight years old. In the meantime, there have been many changes in techniques, processing methods, and in the equipment that is used for field and custom storage.

Experience has also been gained in evaluating the semen of sires. Culling of low fertility sires has occurred in bull studs which have gone heavily into frozen semen.

The genetic impacts are unknown.

Efforts have been made to freeze mammalian sperm cells since 1897. Davenport at that time reported human spermatozoa could be preserved at —17 degrees Centigrade.

The English workers, Polge and Rowson, Cambridge, in 1952 reported the first successful large-scale effort to preserve bull semen in the frozen state. They used the glycerol treating process before freezing. This method, with modifications, is used throughout the world today. The first calf known to be born as a result of the use of frozen semen was reported in 1951.

Since 1950, research work on semen freezing has been conducted on a wide scale in the United States, Europe, and many other countries.

We refer to the English work above because we understand these workers have some frozen semen past seven years in storage which will still settle cows. We do not know the percentage of fertility. This should be one of the oldest, if not the oldest, banks of frozen semen in existence.

Some American experiences are of interest. A few that have come to our attention are:

Ohio — On September 8, 1958, a calf resulting from frozen semen was born on the Dean Shoemaker farm, in Franklin County. Central Ohio Breeding Association made the insemination when the semen was 37 months old. The sire had been dead nearly four years when this calf was dropped. The cow settled from the first service.

New York — On Thanksgiving Day, 1958, a heifer calf was born on the farm of Milton Todd, West Danly, N. Y. It was from a cow inseminated with frozen semen from a sire retired because of old age in July 1954 by New York Artificial Breeding Cooperative. The sire had been dead four years and four months when the calf was born. This sire, Seeley Brook Pebble Beach Posch, had a number of calves born with frozen semen stored three to four years. According to N.Y.A.B.C., the average settling rate was 77 per cent, 60 to 90 day non-returns.

New Jersey — Dr. D. C. Reid, New Jersey Cooperative Breeders Association, reports three calves born in late 1959 and early 1960 as a result of using frozen semen stored over six years.

The semen used was from the Holstein sire, Pebble Beach Chieftan Conqueror, and was collected September 5, 1953. A few cows were inseminated with this lot of semen during 1953-54-55 and 56. With only four ampuls then remaining it was decided to keep them for a longer period of time.

From February 20 to April 27, 1959 four cows in New Jersey herds were serviced using the four ampuls remaining from the September 1953 collection. Three of the four cows serviced conceived and delivered live calves. These calves were born over six years after the semen was collected.

Illinois — American Breeders Service, Madison, Wis., in May 1960, reported six calves born in Illinois herds, resulting from use of frozen semen, six years after the sire in question had died.

The frozen semen was from Cot-

You can cool milk in this tank from the Granddaughters of your present herd...

That's right! The Solar Bulk Milk Tank is built to last . . . . built to make your first tank investment a lasting one! Solar uses all 18-8 stainless steel . . . . no mixed metals in tank shells, coils and lines that help create corrosion and shorten tank life. What's more, Solar's controlled flow expansion system plus the largest cooling plate of any tank give you quick, low-cost cooling. Here's something else . . . . the Solar Program completely spells out the extra values of financing, servicing, and warranties that can be yours. Before you buy, write direct or get the full story from your Solar Dealer on the bulk milk tank that's BUILT TO LAST!

USI
SOLAR PERMANENT
Tomahawk, Wisc.
Division of U.S. Industries, Inc.
BETTER MILKING EQUIPMENT... FOR BETTER FARM LIVING

FF 154 HD-4
Solar Permanent
Tomahawk, Wisc.
Send me more information on the Solar Bulk Milk Tank Program. I am now milking_____cows.
Please send information on the following Solar products:
☐ Portable Pipeline ☐ Lo-Por Strainer ☐ Vacuum Tank
Name_____
Address_____
City or Town_____State_____
Please Check One: ☐ Producer ☐ Sanitarian ☐ Student

KLENZADE
MILKING MACHINE AND UTENSIL CLEANING
3 Step Farm Program
Standard daily cleaning routine on thousands of Grade A dairy farms.
Chlorinated for extra cleaning speed. Removes butterfat and protein soils completely.
KLEER-MOR
Organic acid detergent for alternate use with Kleer-Mor. Dissolves and prevents lime and milkstone deposits.
NU-KLEEN
Liquid Chlorine. Clear solution; leaves no sediment. Positive bacteria kill.
X-4 SANITIZER
KLENZADE PRODUCTS, Inc., Dept. 481K, Beloit, Wis.
"Dealer Territories Available In Some Areas."

MC CHOPPER
and Hay Conditioner
HAS MANY FARM USES...
• Chop Stalks for Bedding
• Chop Green Livestock Feed
• Mow and Condition Hay...
IN ONE OPERATION WITH BUILT-IN SLOW SPEED
SEE THE NEW IMPROVED MODELS ...OFFSETS AND PULL BEHINDS
Free Demonstration on your farm
WRITE FOR LITERATURE
MC
MATHEWS COMPANY
CRYSTAL LAKE, ILLINOIS

If Your Dealer Does Not Handle Goods Advertised in Hoard's Dairyman—Ask Him Why!

CLAY
LOW COST
CROP DRYER
Engineered for SCIENTIFIC FARMING
A Clay Dryer keeps twice as much protein in your haymow for top feed conversion. Runs for little as 50¢ a ton. Dries with natural or heated air. Moves to batch or bin for drying corn and grain, too. Ask about "Pay-as-you-dry" Purchase Plan.
FREE BOOKLETS on pushbutton farming —check coupon below.
CLAY EQUIPMENT CORP., 414 Olive Street Cedar Falls, Iowa
Send free booklets on ☐ Milking Parlor ☐ Cattle Feeder ☐ Barn Cleaner ☐ Silo Unloader ☐ Crop Dryer ☐ Hog Equipment
Name_____
Address_____
City_____ State_____
6,000 Dealers Coast-to-Coast

tonade Emmet, a Holstein bull. The semen from Emmet was collected in November 1953, and he died the same month. In March 1960, six calves were born as a result of the use of the November 1953 stored semen.

The semen used in this instance was stored in liquid nitrogen at —320 degrees Fahrenheit. The semen used in the examples from Ohio, New York, and New Jersey involve the use of dry ice and alcohol, resulting in storage temperatures of about —109 degrees.

Three storage methods . . .

At least two types of refrigerants for storing frozen bull semen in these long-time trials were used. No comparison of methods is in order here. Suffice to say that storage in these cases was satisfactory using dry ice and alcohol, which provide temperatures of —110 degrees Fahrenheit or liquid nitrogen at —320 degrees.

Another type of refrigeration used by many organizations is mechanically cooled storage boxes. These operate from —110 degrees to much lower temperatures — some to —150 degrees.

All three presently employed methods seem to be doing a satisfactory job in the United States. It is evident, as facts accumulate and costs of storage are considered, some opinion as to the method of choice will evolve. Such conclusions, based on data presented, are not possible today. We prefer to simply cite the extremes in storage of frozen semen as evidenced by live calves. Next year or in the years to come, storage time on frozen semen, no doubt, will be even longer and the story different.

The impact of long storage . . .

Our information indicates long-time storage of semen for every dairy breed. Even though long storage enables dead bulls to sire offspring, it is our opinion long storage, in itself, means little. We believe the A.I. organizations and private breeders have the same view. The judicious use of semen from the "great old sires," even though long dead, can play a part in the program of discerning breeders. It introduces a new tool in cattle breeding and, we hope, in cattle improvement. Time will tell.

During 1959 the Holstein-Friesian Association registered over 52 per cent of its entries as a result of artificial insemination.

Of the 70 bull studs under contract with the Purebred Dairy Cattle Association, 58 are using frozen semen as a part of their operations. A year-old survey shows over 600,000 ampuls of frozen semen from approximately 1,100 Holstein bulls on hand. When all breeds are added together, an estimate indicates over one million ampuls of frozen semen from top sires of every breed.

We believe this epoch is fine and a real tribute to scientific achievements. At the same time, we feel the future of better dairy cattle in America depends upon the development of new and better bulls by our key breeders.

We have the highest regard for "grandpa," but we believe we must fight our battle of "better inheritance" on sires that win their laurels in 1960 — and in 1970. **We doubt if the bulls of fame in 1953 will stand the competition of 1970.**

Taking a page from history — and we believe cattle breeding no different — "each generation must develop its leaders." We feel our continued success in cattle improvement must call for continual development of proved sires.

Tackle heavier loads...
Get over more acres

M&W LIVE
Hydraulic Systems
Team up your present tractor with latest hydraulic tools
Double the *work range* of your present tractor—regardless of age! With an M&W *Live* Hydraulic System you can hitch up to today's newest, most efficient hydraulic tools. You'll have real fingertip hydraulic power to lift, lower and control the biggest discs, plows, loaders—and heaviest 6- or 8-row equipment. Power that handles the toughest jobs... and *saves you money because you use your present tractor.*
M&W's hydraulic pump is *big* capacity, *live* hydraulic power... 12 gallons per minute at 1250 p.s.i. Two-way or one-way control is instant-fast and continuous—*completely independent of transmission, clutch and PTO.* Even your *oldest* tractor can have '61 NEW performance TODAY. See your M&W Dealer. There's an M&W *Live* Hydraulic System custom-engineered for your make and model.
NEW POWER FOR YOUR PRESENT TRACTOR
M&W TURBO-DOMES
High-turbulence firing boosts power a full gear in field work... provides EXTRA MUSCLE to take your tractors through the toughest going. Now, Turbo-Domes are teamed with Jet Black (oil impregnated) Sleeves to cut ring-drag 60 percent... provide EXTRA lubrication. Result: more power per hour... more hours of power!
M&W DUAL WHEELS
You can save up to 25% on fuel; increase power one gear in loose ground. M&W Duals provide floating traction... eliminate wheel slippage... match pull-power to today's tractor power.
send for FREE M&W "Piston Power" story
M&W TRACTOR PRODUCTS
4305 Green Street • ANCHOR, ILLINOIS
LASTING POWER for all makes and models

Buy From Our Advertisers — They Are Reliable

KLINZING
Cattle Comfort Stalls
Barn Cleaners
TOP QUALITY AT LOWEST COST
Klinzing offers you designed-right, exclusive-feature equipment, costing less to buy, less to use.
Write for name of dealer plus prices and data on lines.
CHOICE DEALERSHIPS STILL OPEN
A. F. KLINZING CO., INC.
101 Western Ave., Fond du Lac 1, Wis.

Dr. Larson's
FLEXIBLE, NON-IRRITATING POLYETHYLENE PLASTIC
TEAT TUBES
FOR SORE, INJURED HARD-to-MILK TEATS
Sterilized, ready to use, for any injury of teat that makes normal milking painful or impossible. Tube immobilizes teat orifice, aids healing of injured tissues, won't aggravate wound. Scientifically designed flexible fingers hold tube in teat. Remove cap for milking by machine or hand. Leave tube in teat until healed. No more sore teated kicking cows. At your local veterinary supplier, or order by mail, 3 for $1.00. Write Dept. H.
DR LARSON'S ANIMAL HOSPITAL
3 FOR $1.00

GEHL 72 CHOPPER

Exclusive features give you more for your machinery dollar

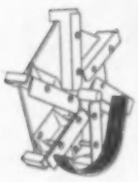
6-FOOT CHOPPER AT A 5-FOOT PRICE

That's right. Gehl's 72 Chopper cuts a full six-foot swath. Gives you up to ⅓ more capacity than many so-called five footers — and sells for less than many of those same machines. The 72 Chopper puts 39 razor-edged flails into the crop. Cuts cleaner than a mower ... gives you the fine, short-length cutting that means better quality feed.

Capacity and price aren't the only reasons more farmers prefer the Gehl 72 Chopper. Look at the exclusive features you get. New Quick-Change flails. They're reversible and interchangeable for longer life. There's the unitized fan blade and knives. And fast, easy knife adjustment to meet any chopping requirement.

Put Gehl's big six footer to work in your fields. Ask your Gehl dealer for a demonstration, or mail the coupon below for complete information.

1 REVERSIBLE FLAILS — Double-edged for double chopping life. Mounted in gangs of six and seven. Quickly switched by removing cotter pin, slipping mounting rod from cylinder.



2 UNITIZED FAN BLADE AND KNIVES — Crop is re-cut by unitized knife and fan blade cutter head with adjustable shear bars. Gives effective cut-and-throw action. Fan threshing is eliminated.

3 EASY KNIFE ADJUSTMENT — Simply open the blower housing. Cutter head fan blades and knives are easily adjusted to meet your chopping requirements. All you need is a wrench.

GEHL BROS. MANUFACTURING CO.
Dept. CD-26-3, West Bend, Wisconsin
Please send me full information on the Gehl 72 Chopper with new Quick-Change flails.
NAME .....
ROUTE ..... TOWN .....
STATE ..... ☐ I am a student

GEHL
102 YEARS OF SERVICE

3-6183

Protect your soil by STUBBLE MULCHING

Leaving residue on top of the soil increases its ability to absorb water, thus reducing run-off and erosion. Popular in drier areas.

by F. L. Duley

MODERN agriculture in America has developed largely around the use of the moldboard plow. This implement has been popular because it incorporated all surface organic matter with the soil and gave a well pulverized layer of soil for making a seedbed.

On the other hand, the plow left the soil bare and exposed to rapid erosion. There was a loss of the fertile topsoil as well as excessive loss of water by run-off. In dry areas it exposed the soil to severe wind erosion.

Recently, methods have been devised for tilling the soil without turning it completely over or burying the residue. In Nebraska experiments, plowed land lost 2½ times as much water by run-off and 4½ times as much soil by erosion as land with surface crop residues.

This system of leaving residue on the surface is called "stubble mulch farming" and is best adapted to the drier sections of the country, such as the Great Plains, or during dry years elsewhere.

Stubble mulch farming is also proving to be of value in the warmer parts of the country, such as the hilly land of the Southeastern states. In the cooler and more humid parts of the country it may be found to have value for certain crops or conditions, such as grass seedings in Ohio.

More research is needed to determine where and on what crops it can be used advantageously under conditions of higher rainfall and cooler temperatures.

Equipment is available . . .

Equipment has been developed and is now on the market for good tillage without inverting the soil or covering the residue. Implements are available for preparing the seedbed and planting small grain, grasses and legumes, as well as the row crops by this method.

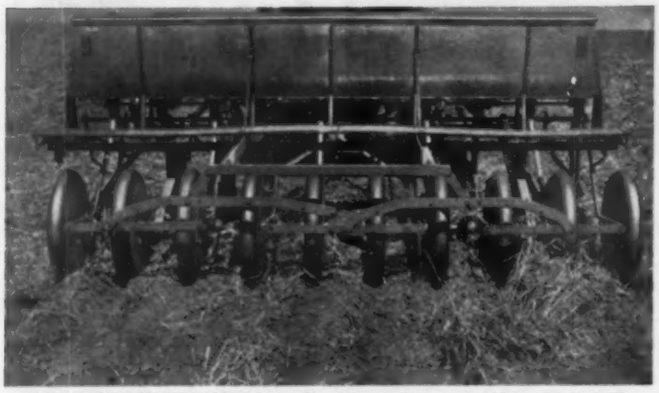
The inter-tillage of row crops can be well done and, at the same time, leave the residue on the surface to protect the soil. This is

The author is a soil conservationist of the soil and water conservation research division, agricultural research section, U.S.D.A., Lincoln, Neb.

SUBSURFACE TILLER with 8-foot blade is used for loosening and pulverizing soil without covering the residue. Other subtillers are equipped with multiple blades varying in width from 18 to 42 inches.

MULCH TREADER is used primarily for weeding and firming the seedbed after use of the subtiller. This process puts the soil in excellent condition for drilling small grains or for seeding grass.

ROW CROP CULTIVATOR works through residue without covering it.



HOE-TYPE GRAIN DRILL seeding through crop residue. Disk drills also may be used, but avoid burying too much of the organic matter.

very important since it is during the early growth of the crop that erosion may be serious in row crops. If residue is left on the surface between the rows, little erosion is likely to occur.

Methods have been developed for producing any of the crops grown in this part of the country by this stubble mulch system. The method is most easily carried out with small grains or legume and grass seedings. But, row crops usually can be produced under the stubble mulch system with less labor and time than with the plow system.

The yields, in general, have been about the same with stubble mulching and plowing. Corn yields have been slightly higher during dry years and slightly less during wet years than with plowing.

Where plenty of nitrogen has been supplied, either through legumes or by the use of fertilizers, the yields have been essentially the same by the two different methods of tillage.

In the case of wheat, the yields on stubble-mulched land have been better compared with plowing as we go from humid to semi-arid conditions. The method is best adapted for crop production under relatively dry or warm conditions.

Stops wind erosion . . .

In the Great Plains, stubble mulching is proving to be an effective method of wind-erosion control. This is particularly true in areas where the land is summer fallowed. Under these conditions, land can be protected for a long period by use of a mulch.

The stubble mulch method has had its greatest development in the regions of limited rainfall. However, due to its effectiveness in reducing water erosion, it seems destined eventually to become more common in more humid areas.

Prevent grassy flavors

The dairyman who welcomes springtime for the succulent pasture grasses it provides is also faced with certain vexing problems. The new grasses cause grassy flavors to appear in the milk from cows consuming them. These flavors in the raw milk carry over into the pasteurized product.

The flavor-giving elements in green feeds, and particularly the early stages of growth of young grass plants, are present in milk in proportion to the amount of the feeds eaten by the cows as explained by Dr. Chris Jensen, chairman of the dairy department of the North Dakota Agricultural Experiment Station.

To entirely control grassy flavors, the cows should be removed from the pasture five hours before milking, a practice not practical on most dairy farms. It is possible, however, to lessen the feed flavor by regulating the feeding of pasture grasses.

Researchers recommend that the cows be given an abundant supply of good hay as the sole ration in the cow yard after each milking, and concentrated feeds should be fed in the barn during milking. This practice will lower the amount of grass eaten by the cows in the pasture early in the season to where the milk will have a feed flavor so slight it will not be noticed by the average consumer.

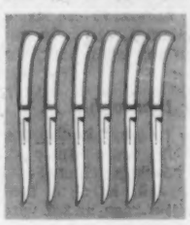
Gradually shifting the cows from dry feeds to pasture is another method of lessening grassy flavors. This is a system practiced with success in some European countries. The cows are first turned into the pastures for just one hour daily, gradually increasing the time until the changeover is complete.

GUARDIAN ASKED 5,000 DAIRYMEN

"What do you want a Milk Filter to do for you?"

Positive Action . . . *quality sediment-free milk, everytime!* ***Fast Action . . .*** *all the speed dairymen asked for!* ***Strong Action . . .*** *filter strength that really stands up!*

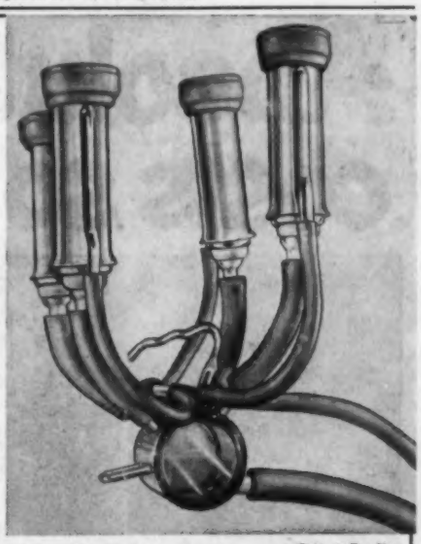
To get acquainted, Guardian makes this fabulous limited-time offer! This beautiful set of 6 Imperial — **STEAK KNIVES** Sabre-Ground Stainless Steel Blades and handsome white simulated bone Handles — American Made only $1.98 with one coupon from a 3-Pack of Guardian Filters.* To get yours, act soon! New Guardians are available wherever you buy your milk filters.



GUARDIAN FILTER DIVISION
UNION WADDING COMPANY
PAWTUCKET, RHODE ISLAND

*Premium offer restricted to Continental United States. Void where offer is prohibited, taxed or regulated. Offer expires May 31, 1961.

A MAJOR BREAKTHROUGH



Patent Pending

NOW, a milking unit that gives you all these features!

- **CAPACITY** — extra large bowl helps stabilize vacuum at the teat end. Milk moves **OUT OF THE BOWL FAST.** It can never flood and backwash the teats.
- **CLEANABILITY** — dirt can't hide behind the clear plastic windows. Completely C.I.P. and you can see it's clean.
- **VISIBLE MILKING** — you can absolutely eliminate one of the major causes of mastitis, **OVERMILKING.** You see the milk pour from each quarter into the bowl.
- **CAN BE USED on YOUR** system regardless of make or model.

see your dealer or write to —

Bou-Matic MILKERS, INCORPORATED
A SCIENTIFIC APPROACH TO THE MILKING SYSTEM

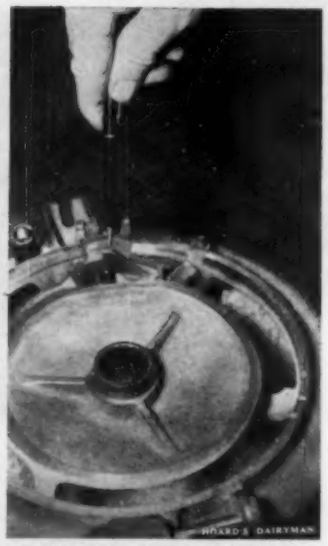
P. O. Box 900, 12375 South Euclid Ave., Ontario, California

Is your corn planter ready to go?

The few hours spent in a pre-season check-up will save time and trouble during planting and insure accurate seed population for top corn yields.

by Wendell Bowers

CUT-OFF PAWL rides on top of seed plate, preventing more than one kernel from entering cell. If it is damaged, stuck, or badly worn, it may cause damage to the corn.



KNOCK-OUT PAWL will kick out corn kernel if it is too large to fall freely from seed plate. If this pawl becomes stuck or is broken, drop of the seed may be erratic.

THE corn planter is used only a few days each year, but those few days can mean success or failure of your corn crop. Each year, many corn growers suffer a financial loss due to such things as delays due to breakdowns, skipped rows, or planting too few or too many kernels. Most of these troubles can be eliminated by having the planter ready to go well ahead of the season. Here is a check list you can use to help put your planter in top shape for the coming season.

Clean planter thoroughly . . .

A good place to start is cleaning since dirt is the main cause of rapid wear of bearings, chains, and sprockets. It is still hard to beat kerosene, some old rags, and a wire brush for removing dirt and grease. If you have an air-pressure tank, it will be handy for cleaning those hard-to-reach spots such as the bottom of the fertilizer hopper.

As you clean the planter, make a list of damaged or broken parts that need repair or replacement.

Check the planter units . . .

Each planter unit has to work properly if you want to avoid skipped rows or thin stands. Jack up the planter, put it in gear, and turn the drive wheel by hand. Place enough seed corn in each hopper so you can check the individual planter units to see if they are functioning properly.

If the corn kernels come out broken or damaged, you can suspect a faulty cut-off pawl. If not enough kernels are dropped, the seed plate is probably too small, but there is a slight chance the knock-out pawl is not working.

When the kernels are not coming out uniformly for each hill, the valves may need adjusting or there is too much wear in the mechanism that drives the seed plate. If you notice any of these troubles, remove the hopper and take a closer look for the source of trouble.

Examine both the cut-off and knock-out pawls. If either appear to be damaged or badly worn, it is probably simpler to put in new ones than to make repairs. Of course, if they are stuck due to dirt or rust, oil may be all they need.

Check the hopper bottom plate. If your planter has been used for several seasons, this ring probably is grooved and may allow more than one kernel to fill the cell even though the proper seed plate is used. If this is the case, the ring may need to be replaced.

To locate the cause of erratic planting, check the valves in the planter boot. They can be adjusted to give proper opening and closing. Use your owner's manual and check the timing of the clutch, seed plate, and valves. If the timing is correct and the valves are adjusted properly, erratic planting may be caused by worn hopper chain or seed plate drives. Wear of these parts, while not

The author is an extension agricultural engineer, University of Illinois.

Absolutely no other rake costs so little...works so well

THE FARMHAND MODEL 25—Now you can buy an efficient, rugged wheel rake—the modern rake—for under $400 . . . with all the proven features of the more expensive rakes, plus advantages of its own. No PTO, gears, belts, pulleys or ratchets to wear out or give trouble. Exclusive hand crank adjustment sets proper raking pressure on all wheels simultaneously . . . quickly raises wheels for fast, easy transport.

The Model 25 takes a 7′ swath, eases hay into fluffy, open windrows with a minimum of crop movement or damage. Rakes clean on rough or rocky fields, ditches, contours or borders. Works equally well in light or heavy hay. May be adjusted, without tools, to offset position or used as a windrow turner. Ask for a demonstration on your farm soon!

OTHER MODELS include the popular Farmhand-Morrill M-5 which rakes a full 7½ ft. swath, and M-6 rakes with 6 raking wheels and a 10-ft. raking swath. See your Farmhand Dealer or send coupon.

THE FARMHAND CO.
Dept. HD-411 Hopkins, Minn.

Send information on _____

I am a student, send special material ☐

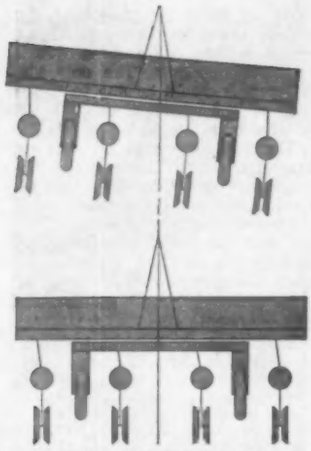
Name _____

Address _____

Town _____ State _____

Division of Daffin Corporation

Farmhand
FIRST IN FARM MATERIALS-HANDLING



PLANTER RUNNERS sometimes are forced out of alignment by turning planter around in hard ground without raising the planting units.

affecting planting population directly, can result in rapid wear of the pawls in the bottom of the hopper by allowing too much play in the turning of the seed plate. If you have planted more than 1,000 acres, chances are the hopper drive chain and pawls need replacing.

Check alignment . . .

If you had trouble last year with uneven row spacing, or the planter pulled to one side, the trouble might be due to the runners being sprung to one side. This is a common occurrence, particularly if you have made the typical mistake of trying to turn at the row end without first raising the planter.

Take a look at the runners. They should make a right angle with the planter frame. If not, loosen the bolts that hold the runner and runner braces. Set the runners straight and tighten the bolts. In extreme cases, it may be necessary to remove and straighten the braces.

Improper alignment of the frame and hitch also can cause the planter to pull off to one side. Usually, you can loosen the bolts and straighten the hitch but, naturally, if some member is bent, it will have to be straightened or replaced.

Let the markers down and see if they are properly adjusted. The markers should be set to give a guide line that is the proper distance from the last row planted. This would be 100 inches for a 4-row planter, 60 inches for a 2-row planter, assuming a row spacing of 40 inches.

Your dealer may not have all of the parts you need in his parts stock. Allow plenty of time for him to order these from the factory. Always provide the dealer with the model number of your planter and the number of each part.

Lubricate well . . .

Last, but not least, grease all fittings and check the level of the lubricant in the gear case. Take an old paint brush and some light oil and soak all chains, as well as other places where wear occurs. Polish the runners and coat them with grease so they will scour rapidly when you start planting.

The weary man had just settled down with his pipe and the evening paper.

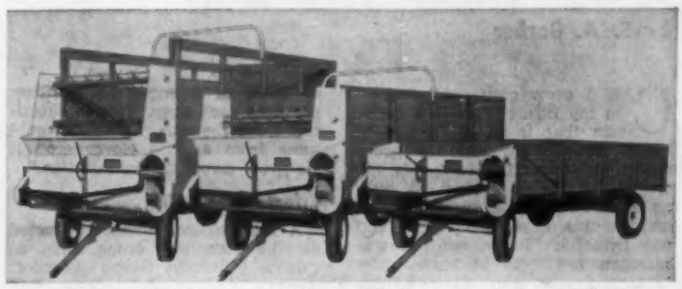
"Sam," called his wife. "I've got a lot of things I want to talk to you about."

"Well, fine," said her husband. "Usually you want to talk about a lot of things you haven't got."

CHOOSE FROM NOT 1, NOT 2, BUT 3

NEW FORAGE MASTER SELF UNLOADERS

ONE FOR EVERY NEED



3 beater 72" sides 2 beater 48" sides 1 beater 21" sides

Whether you farm 50 acres or 500, there is now a Forage Master Self-unloading Forage Box to handle any job. Many farmers use 2 or even 3 boxes to adequately mechanize the feedlot and forage harvesting.

The new 1961 line provides such features as extra large capacity, (83" wide inside, 16 ft. long, including cross conveyor), 1 ton per minute unloading with big 16" diameter auger that assures simple positive action for front-end unloading into grain elevators, blowers or bunk feeders. Available complete or in economical kit form with detailed instructions.

REAR END UNLOADING, TOO

The new low priced rear unloading kit makes unloading into trench silos and the handling of baled hay easy (2 upper beaters are removable for loading with bale throwers). For further details fill in the coupon below.

KASTEN MANUFACTURING CORPORATION

Dept. HD, Allenton, Wisconsin

FORAGE MASTER

I am interested in more information on the Forage Master Self-unloaders.

Name .....

Address .....

City ..... State .....

Why pay more? Improved Farmhand Hay Conditioners have all the features!

PRICED $50 TO $200 LESS THAN MOST OTHER HAY CONDITIONERS

Farmhand's Model F-96 gives you all the features—and then some! Efficient 7' swath. Has all three adjustments necessary for positive hay conditioning: (1) roller spacing (2) roller tension (3) ground clearance. These adjustments allow you to tailor action of the F-96 to your particular terrain and hay conditions. They can be made quickly in the field, without special tools. Ruggedly built by Farmhand, the F-96 has channel steel frame and 15" wheels. So beat the weather and put more food value into each bale by conditioning your hay the Farmhand way.

SPECIAL STUDDED STEEL ROLLERS of Model F-96 crimp and crush hay so stems dry out with the leaves. This combination action makes small stems more palatable and speeds curing without clipping or shattering. Large diameter rollers are PTO-powered through heavy-duty drive, protected by friction clutch. Optional rubber upper roller is available.

IF YOU PREFER CRIMPING—The Farmhand-Oppel Model 80 Hay Conditioner utilizes smoothly meshing steel angles to give thorough crimping, quiet running. Action is firm, but does not shatter leaves. Handy crank raises or lowers rollers to proper ground clearance. Heavy-duty drive mechanism protected by safety clutch. Optional gauge roller prevents gouging over borders or high spots in uneven fields. Optional wings form narrow, fluffy windrow.

Farmhand

FIRST IN FARM MATERIALS-HANDLING

FREE INFORMATION!

Write: THE FARMHAND COMPANY

Dept. HD-411A, Hopkins, Minn.

Please send literature on_____

I am a student, send special material ☐

Name_____

Address_____

Town_____ State_____

Division of Deffin Corporation

Crop rotation vs. continuous corn

Legumes and grasses will improve soil tilth more than will continuous corn. Tests also show better yields are obtained with crop rotation.

by S. A. Barber

CAN I grow corn continuously on my farm? This is a question that is asked frequently these days. Years ago we grew clover and hay crops to supply nitrogen for the corn crop, as well as to keep the soil in good tilth and provide hay and pasture for our livestock. Today, we can use nitrogen fertilizers to replace the nitrogen benefit once obtained from the clover crop.

When we replace this nitrogen with fertilizer, how much is our hay crop worth for keeping up soil productivity? Do we need to grow hay crops at all? Maybe we will grow less on the level land and use more on the rougher land which might erode if we grew row crops frequently.

Corn requires a lot of nitrogen. A 100-bushel crop requires 200 pounds of nitrogen. This must come from the soil organic matter, the previous clover crop, and the fertilizer. We also get 10 or 15 pounds coming down in rainfall and from nitrogen-fixing soil microbes.

Where we grow continuous corn we usually have to add 100 pounds or more of nitrogen as fertilizer per acre each year. This is substituting for the nitrogen which would come from a good clover crop if we grew clover in our rotation.

The author is professor of agronomy, Purdue University.

Effect on soil tilth . . .

A rotation experiment conducted on the soils and crops farm at Purdue University shows the effect on corn yields of both nitrogen and the effect of clover on soil tilth.

Continuous corn and a rotation of corn and oats with a sweet clover intercrop were compared both without and with nitrogen fertilizer. These rotations had been used without supplemental nitrogen for about 30 years. The plots were split and nitrogen applied at rates up to 160 pounds per acre. The effect of rotation and nitrogen on corn yield is shown below:

Rotation	Without nitrogen	With nitrogen
	bushels	bushels
Continuous corn	49	94
Corn-oats (sweet clover)	93	104
Difference	44	10

The nitrogen on the continuous corn increased the yield from 49 to 94 bushels. The oats (sweet clover intercrop) rotation gave an additional 10 bushels that was due to factors other than nitrogen.

The biggest effect of the rotation was the nitrogen effect. The corn-oats (sweet clover intercrop) rotation also was increased by nitrogen, so the sweet clover did not contribute enough nitrogen for the top yield in this case.

Climate affects results . . .

An alfalfa-brome grass mixture can improve the soil tilth. However, in some years there may be no corn yield increase due to the better soil tilth, while in other years there may be a substantial difference. Weather conditions seem to affect the influence of soil tilth on corn yield. You should remember this variation when people talk about the results they have obtained in one year only.

Recent experiments at Purdue illustrate the effect of weather on the results obtained. Three rotations were compared. They were:

Continuous corn
Corn-corn-oats-hay
Corn-oats-hay-hay

In this experiment large applications of nitrogen, phosphate, and potash were used in an attempt to eliminate any differences due to fertilizer nutrients. The only yield differences would be due to the effect of the rotation on soil tilth or structure.

The extra bushels of corn per acre from corn following a hay crop over corn following continuous corn varied from year to year.

The relation between seasonal rainfall and the increase in corn yield due to the rotation of hay before corn is shown below:

June-July-August rainfall—inches	Increase in yield due to hay bushels
10	12
9	0
8	0
18	20
26	15
6	17

These limited data seem to indicate that in years with very high or very low rainfall the effect of soil structure on corn yields was greatest.

The first year with 10 inches of rainfall was an exception to this. In years with 8 to 9 inches of rainfall it was possible to get as high a yield of corn with continuous corn as it was in a rotation including hay. This seems to indicate that if conditions for corn growth are very favorable, rotations do not increase corn yields.

In years which are less favorable they do give larger yields. On one dry year the yield was increased and on the three wetter seasons, larger yields also were obtained where a rotation containing hay was used. In this experiment the average yield obtained for the 6-year period was 120 bushels. It varied from 97 to 140 bushels per acre.

The condition of your soil likely

Learn
HOW YOU CAN
DOUBLE
YOUR NET
PROFITS
with STARLINE
Planned Automation*

* Barn Cleaners—Automatic and Portable
* Auger Feeders—Overhead and Bunk Type
* Barn Equipment—Dairy and Hog
* Silo Unloaders
* Free Planning Service

One Dairy Man can only manage about 16 cows in an old-fashioned, hand operated barn. With Starline Planned Automation, modern methods and no increase in manpower, he can handle up to 65 cows. This can double or triple his Annual Net Profit.

One Beef Man is limited to about 70 cows (with calves) or 210 steers until he automates. With Starline Planned Automation, modern methods and no increase in manpower, he is able to double or triple his herd and his Annual Net Profit.

One Hog Man can only manage about 90 litters a year if he does the whole job manually. With Starline Planned Automation, modern methods and no increase in manpower, he can easily double the size of his operation and his Annual Net Profit.

STARLINE
HARVARD ILLINOIS
Labor Savers

FREE

STARLINE, INC., Dept. 410, Harvard, Illinois

Please send me a free Starline Labor Saver Calculator and other information that shows in dollars and cents how much more profit I can make with Starline Planned Automation.

I am interested in information relative to:
Stanchion Dairy ☐ Loose Housing Dairy ☐ Beef ☐ Hog ☐ Student ☐

NAME
RFD & TOWN
COUNTY STATE

Master Saver FEEDER

COW FEEDER
(Feeds 24 Head)

FOR HAY OR ENSILAGE
Model #15 $89.50
15 Ft. Long

• PERMANENT
• ALL-METAL CONSTRUCTION
• CUTS YOUR FEED COST

CALF FEEDER
(Feeds 18 Head)
Model #10 $59.50
8' 2" Long

Price includes Freight to all parts of U.S.A. except east of Rockies. Slightly higher elsewhere.

Write for free illustrated folder

CENTRAL STATES SALES CO.
P. O. BOX 10222 DALLAS, TEXAS

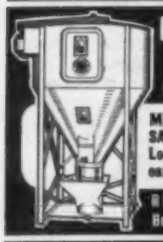
WORK CLOTHES - COVERALLS
SAVE 75% OF ORIGINAL COST

Coveralls	$1.89
Shopcoats, white only, 36-46	1.50
Matching pants and shirts	1.50
Pants only	1.00
Shirts only	.50
Heavy Twill pants, Sizes 30-42	1.50
Hvy. twill shirts, Dark colors	1.00
Matching Gabardine-Like pants and shirts	2.00
Gabardine-like pants only	1.25
Gabardine-like shirts only	.75
Lined twill jackets (36-42)	2.89

Add 50c for postage, handling. No COD. All sizes. Colors — White, Tan, Grey, Blue, Green. Used. Professionally laundered. Satisfaction guaranteed.
PLYMOUTH SURPLUS SALES
P.O. Box 385 Dept. H Gloversville, N.Y.

DAISY Cattle Markers

Solid brass tags and brass-plated chain
No. 21—FOR NECK Case-hardened chain. Tag numbered both sides. $13.25 per dozen delivered.
No. 17—FOR HORNS. Case-hardened chain. Tag numbered both sides. $9.20 per dozen delivered.
No. 88—DOUBLE PLATE NECK MARKER. Combination strap webbing and heavy chain, two marker plates. $14.50 per dozen delivered.
Write for catalog. Sample mailed for $1.00.
GOLDEN ARROW FARMS
Dept. C, P.O. Box 7 Huntington, Indiana



BROWER Whirlwind FEED MIXER
MIX YOUR OWN FEED SAVE TO $16 A TON
Low price . . . WRITE for easy time payment plan.
BROWER MFG. CO.
Box 2560, QUINCY, ILL.

Heal TEATS! Soften UDDERS!
You will like this modern, more effective medication for Sore Teats, Tender Udders. More soothing, more softening, more penetrating to relieve soreness . . . reduce congestion. At all drug and farm stores, or write
Dr. Naylor's UDDER BALM
H. W. NAYLOR CO., MORRIS 58, N. Y.

WEAVERS Write for low prices—carpet warp, rug filler, looms, parts, inexpensive beam counter. If you have a loom, give make and width please.
OB. RUG CO., Dept. 3166, Lima, Ohio

Back Your Future With U. S. Savings Bonds

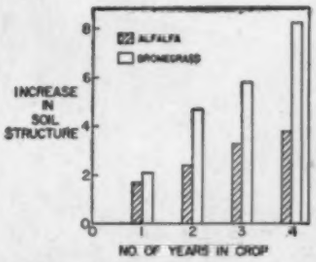
will affect the size of the differences found here. In this case, crops were grown on a silty clay loam soil high in organic matter. On soils lower in organic matter the differences may be greater.

It is often advisable to put part of your farm mainly to row crops such as corn and soybeans, while the remainder is cropped to a rotation including several years of hay and pasture crops.

When you apply ample amounts of fertilizer to your level, good-structured soil, you may be able to maintain high yields of continuous corn with little erosion loss.

The rolling land and the fields that are hard to plow should be kept in well fertilized hay crops a large part of the time, so that their tilth improves and soil erosion is kept to a minimum. In this way, you can maximize production and keep soil in good condition.

The yields you get in any one year do not tell you whether you need more or less hay crop in your rotation. Examine the effects over several years. There are liable to be differences because of the climate. If the yields seem to be going down where you have continuous row crops, change your rotation and include forage crops. The inclusion of grass in the rotation will rapidly improve the tilth of the soil. On many soils grass is twice as effective as alfalfa.



BROME GRASS is twice as effective as alfalfa in improving soil structure. Tilth is improved with each additional year crop is grown.

Holland importing butter

What would you say if you read in your favorite newspaper that the U.S. has become an importer of wheat? Surely, you would think the world has come to an end.

Yet, something very similar is happening right now in Europe.

With 40,000 metric tons of exports, Holland, Europe's second largest seller of butter, actually purchased 800 tons of butter from France in the second half of January 1961.

This surprising fact is primarily due to the unusually heavy domestic demand following the affair "Planta." Another factor was the decision of the Dutch Ministry of Agriculture to increase domestic butterfat content of milk from 2.5 per cent to 3 per cent.

This increase caused a decline of butter shipments at the rate of 150 tons weekly or about 7,800 tons per year, corresponding to 10 per cent of the total yearly output. Strong foreign demand for condensed milk led to another reduction of butter production. As a result, butter stocks, which in the summer of 1960 were still as high as 18,000 tons, declined to 5,100 tons in the middle of January 1961.

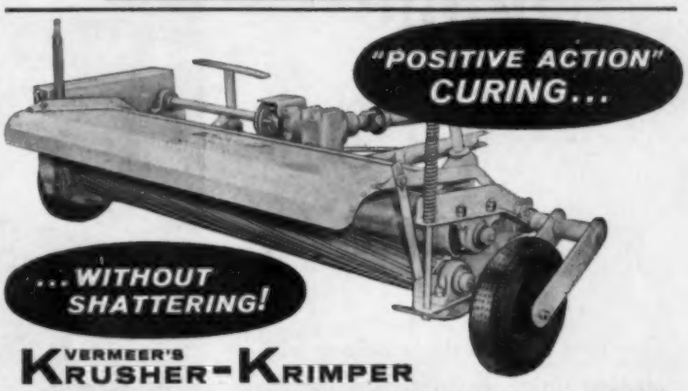
Main beneficiary of the Dutch butter situation will be France, which entered the year 1961 with exportable stocks of close to 50,000 metric tons.

—LANDWIRTSCHAFTLICHER INFORMATIONSDIENST, BERN

VIGORTONE
PRE-MIXES
Vitamin ... Mineral ... Antibiotic ... Enzyme

Scientifically formulated for progressive livestock men who grind and mix their own complete rations. Now, your rations can be tailor-made to fit nutritional needs on YOUR farm . . . easily and economically. VIGORTONE pioneered the advanced Pre-Mix idea for modern feeding. Combine these Pre-Mixes with one or more natural proteins . . . and cut protein bills in half! Use greater percentage of feedstuffs produced on the farm. Sold and serviced "on-the-farm" by over 1,000 nutritionally-trained Vigortone Dealers.

VIGORTONE PRODUCTS, Inc.
CEDAR RAPIDS, IOWA



VERMEER'S KRUSHER-KRIMPER
LOWER PRICED—QUALITY BUILT • WHY PAY MORE?
VERMEER'S KRUSHER-KRIMPER "Positive Action" curing gently breaks the stems every 1½" . . . saves up to 50% in drying time. Gives richer, softer, more palatable protein-packed hay. Simple, rugged construction . . . and priced to fit the budget of nearly all farmers. New Roll Silencer Kit now available as optional equipment.
Write for complete illustrated literature and low price
VERMEER MANUFACTURING COMPANY
1412 W. WASHINGTON • PELLA, IOWA

End Slivers . . . Stop Bacteria "Soak-Up"
. . . with this NEW handle

The original equipment brush on the majority of all farm bulk tanks!

• Exclusive composition handle and grip
• Always stays snow-white . . . super sanitary

$11.95 Complete
NO. 358PB

SPARTA'S FAMOUS "BULKER"

Maybe you are now using the popular Sparta BULKER. Then you know first-hand about the extra long life and efficient service that make it America's No. 1 Bulk Tank Brush. So whether it's a replacement you need . . . or your first Sparta brush — order the improved SPARTA "BULKER" today. Only $11.95 complete. It'll cost you less because it will last longer.

Order from your Dairy Plant, Milk Hauler or Farm Supply Store.

SPECIFY Soak-Proofed SPARTA

Sparta Brush Co., Inc.
SPARTA, WISCONSIN

YOU'LL FENCE FASTER
than ever before with the Shaver Hydraulic Post Driver!

Now with more than 10,000 additional pounds impact you'll set fence posts faster than you've ever seen, even if you've worked with a Shaver! Newly added adjustable springs give the Shaver Post Driver nearly 50% greater driving force for faster, easier fencing. The Shaver Driver is mounted up front for easier spotting and you'll drive a 4' to 5' post in as little as 10 to 15 seconds, with finger-tip ease . . . your tractor hydraulic system does all the work.

FREE Write today for literature on the Post Driver that lets you set up to 80 rods of posts in just 80 minutes.

SHAVER MFG. CO., Graettinger, Iowa

DAIRY FARM HOME

Ideas for home sewing center

Consider using wall or corner with storage units, an unused closet, or even an old desk or dressing table.

by Ann Joselyn

—Photo courtesy Hardboard Association

BUILT-IN SEWING CENTER places everything in one compact area. Note decorative squares of perforated hardboard (right) with removable hangers to hold thread spools, and so forth. Scalloped window frame is cut from hardboard, with scraps used for dividers in wall shelves.

IS THERE a woman who sews who doesn't dream of having a compact sewing center or area she can call her own?

Every woman wants a place where all her sewing materials and supplies are in one location, where she doesn't need to run from one room to another between sewing machine and ironing board, where it isn't necessary to clear the sewing from the dining room table when it's time to eat.

Look around your home and see if there isn't a nook or corner that could be converted into a sewing area.

A separate room is not always available nor necessary, especially when the sewing machine is used primarily for mending or only occasional home projects.

Built-in storage wall . . .

If you do a lot of sewing, consider a built-in storage wall that houses all your materials from pins to patterns. Cabinets, shelves, drawers, and work space can be easily installed at the end of an extra bedroom, a recreation room, or large upstairs hall.

With doors that slide or fold, this area also can be closed off and incorporated into a bedroom, hall, or even a dining room.

Hardboard, an extremely versatile wood product, is often used in projects such as these. It is available in woodgrained finishes, as well as plain and perforated panels easily painted to fit in well with any color scheme.

Perforated hardboard, used with removable hangers, can hold innumerable small objects in full view and easy reach. It also can be used for tacking up pattern layouts, special instructions, or clippings of the latest fashions, and so forth.

Unused closets . . .

Maybe you have an unused closet which could be converted into a sewing area with a pull-out shelf to hold your sewing machine.

Add a full-length mirror to the front of the closet door, pockets or pegs to the back of the door to hold other sewing needs.

When the day is done, but not the sewing, simply slide back the sewing machine. Close the door and your sewing is out of sight.

Old dressing table . . .

An old dressing table, or unfinished one, could be transformed into a compact sewing center. Those with drawers at the side and a shelf in the center at a lower level are ideal. The sewing machine on the lower level rests at a convenient height.

All necessary sewing equipment is stored in the dresser drawers. If your husband is handy with tools, ask him to add a drop leaf at the back of the dressing table. This then can be raised for a cutting surface.

An old desk also could be used. If too high, shorten the legs to make it a comfortable height for sewing. Paint in a color to harmonize with the room's color scheme.

Near the laundry . . .

If you're looking for a good spot for a sewing center, why not put it right next to the laundry area? Not only is there usually space available here, but it also saves steps when it comes time to mend clothes.

Build a sturdy shelf to hold the sewing machine, other shelves for sewing supplies.

Other sewing tips . . .

For the ideal sewing center, there should be space to keep all the little supplies such as thread spools, and so forth, close at hand.

If your supply is scattered about among several drawers or boxes, try one or two small tool or jewelry boxes with lots of little plastic drawers in which small spools of thread can be easily separated and stored according to color.

You'll also need drawers for patterns, odds and ends of fabric. Shelves are needed for a sleeve board, whisk broom, and pressing cloths.

If space does not allow for a permanent work surface, a cutting board of cardboard which folds for storage can be used on a table, bed, or floor.

These are a few of the ideas you might adapt to your needs to make your sewing much easier and more pleasant. **THE END**

From Day to Day

by Lois J. Hurley

"A good dog never dies. He always stays.
And any time you're lonely, look, you'll see
His great eyes watching you, still solemnly,
Just call him in your heart, he'll cease his play,
His head within your hand, in his old way!"

—Mary Carolyn Davies

I CAN now appreciate those lines, which have lain in my scrapbook for many years. Freckles, our cocker, whose 7th birthday I anticipated in a March issue, didn't make it. Victim of a growth mass, probably malignant, that was causing him much pain and from which the doctor said he could not recover, he was put to sleep a month short of 7 years.

After having him as a constant companion for such a long time, the house seems unbearably big and empty and silent without him. His bed is gone from the back hall; there are no food and water bowls at the bottom of the steps. No little beggar sits in his supposedly forbidden place under the table, at meal-times, hoping for a smuggled tid-bit.

When I drop down on the davenport for a short rest, no little face peers over the edge at me; no right paw is extended to be shaken and held. We were great "paw-holders," stemming from the fact that we both shared a fear of thunderstorms and would meet at the foot of the stairs on booming summer nights and hold each other's hands/paws and cower together.

When I sit down to read, no little bundle of orange fur sighs in blissful contentment and stretches out at my feet. If I take too long without noticing him, no waggish clown rolls on his back in the middle of the floor, all four feet spread out, eyes rolled up in appeal for a tummy-scratch.

There is no duty we so much underrate as the duty of being happy.

—Robert Louis Stevenson

No cold nose nudges my heels, keeping step with me as I walk through the house. No little form stretches luxuriantly b e f o r e the open fire, which he so dearly loved, and to which he laid so close we feared for a scorched nose.

Of course, there are no muddy paw prints to wash up from the kitchen floor; no clumps of dog-hair to vacuum up; no bathing; no clipping; no bowls to wash and keep filled; no leashes to locate; no going out; things we used to fuss about, but which now seem very unimportant. For, after Freckles learned to mind at all, and the process was slow, he learned to mind well, and would willingly wait for the word that his feet were dry enough to come in or that he would have to wait awhile to go out or that it wouldn't hurt him to stay outside in the crisp air a few minutes before we went after him.

He was extremely sensitive, being immediately ashamed of himself for misdeeds and crushed by rebukes. Never could a little face take on such guilt and remorse as his. His brown cocker eyes could drop and cloud in shame or swim in love or snap with fun when we romped with him.

But why go on? Anyone of you who has lost a pet companion knows what I mean and how I feel. In the swift tide of living, I guess a little dog isn't of enough importance to matter, much, but at the present time I don't think so. And I know that those of you who have little friends you still "call (him) in your heart," as the poem says, agree with me.

Would-be's . . .

Are you one of that vast number of women who promises secretly to some day sit down and write a story about your life or an article about Junior or an essay on some ivory tower thoughts on a pet philosophical theme?

If so, you have many sisters. Over the 30 years that I've written for and about women, countless numbers have confided to me that they have something great to write; have asked me how to write, when to write, what to write, and what to do with it, once their masterpiece is written.

Out of this number, I venture to say that not 1 per cent ever actually set word down on paper, but there are a great many women who do find challenge, stimulation, and interest in life through efforts at writing, good or bad. Over the years, I have attended a good many creative writing courses, made up mainly of women. Lately, it has been my privilege to conduct some such classes, again mostly made up of women. I have been pleased by what I saw and heard and learned.

Women who want to write, plan to write, or who do write are interesting women to whom life is not stale or boring. A person who has writing on her mind, whether good or bad, of necessity has the world about her and the people in it in her consciousness and thus escapes the confines of her own little circle, which can sometimes close in on her pretty obliteringly.

A woman who wants to write keeps her eyes open, her interests fresh and her mind vigorous. Unfortunately, she often stops there; after she gets the ideas, the inspiration, and the enthusiasm for her theme she lacks the fortitude it takes to interpret and translate herself onto paper.

A blank sheet of paper, a stubby pencil or pen, or an empty typewriter are the biggest drawbacks to would-be writing careers that I know of. It is hard to sit down and write; excuses are so easy: It is hard to find the time; it is hard to let things go in order to find the time; it is hard to make the flow as easily as the thoughts you had before you sat down; it is hard, period!

But, it becomes easier, with practice. Take an hour today or tomorrow and write something. A news item for your local paper; a recipe to enter in a contest; a letter to the editor a b o u t something on which you have strong feelings like too much sex in movies or too much shooting on TV or too much (or too little) homework for the children.

Let it stand overnight; re-read and polish it, tomorrow. Invest 4 cents and mail it somewhere. Get started; good intentions for a writing career pave the road to nowhere unless you carry them out.

8102. You'll be ready for any call wearing this chic ensemble — flaired sleeveless dress and crisp bolero. Sizes 10, 12, 14, 16, 18, 20. Bust 31 to 40. Size 12, 32 bust, 6⅝ yards of 35-inch; ⅞ yard contrast for collar. 35 cents.

8160 and 8161. This matching pair is wonderfully simple to sew and fun to wear. 8160 is in sizes 10, 12, 14, 16, 18, 20. Bust 31 to 40. Size 12, 32 bust, 5⅛ yards of 35-inch. 8161 is in sizes 3, 4, 5, 6, 7, 8 years. Size 4, 1⅞ yards of 35-inch. Two patterns, 35 cents each.

8187. Step out in style when it's date time. This junior charmer features a big bow that is optional. Make a sleeveless version, too. Sizes 9, 11, 12, 13, 14, 16, 18. Bust 30½ to 38. Size 11, 31½ bust, short sleeves, 5½ yards of 35-inch; bow, ¼ yard. Price 35 cents.

8234. This popular apron will delight any wearer, with or without the wide pockets. Made in a jiffy. Sizes 36, 38, 40, 42, 44, 46, 48, 50, 52. Bust 38 to 54. Size 38, 40 bust, 3½ yards of 35-inch. Price 35 cents.

8192. A style you wear everywhere all summer is this stunning yoked sundress with bolero for cover-up. In half sizes for the shorter figure. Sizes 14½, 16½, 18½, 20½, 22½, 24½, 26½. Bust 35 to 47. Size 16½, 37 bust, dress, 4⅞ yards of 35-inch; bolero, 1⅛ yards. Price 35 cents.

8205. Equal to any situation is the well-mannered shirtwaist frock. This new version is a half-size special. Sizes 12½, 14½, 16½, 18½, 20½, 22½, 24½. Bust 33 to 45. Size 14½, 35 bust, short sleeves, 4¾ yards of 35-inch; ¼ yard contrast. 35 cents.

Pattern Nos.	Size

HOARD'S DAIRYMAN, PATTERN DEPT.
Fort Atkinson, Wis.

NO PATTERNS EXCHANGED

$_____ for patterns, 35c; first class mail, 45c.

NAME_____ RFD_____

CITY_____ STATE_____

Spring and Summer Issue of pattern book, "Basic Fashion" — 35 cents.
Needlework Album—25 cents.

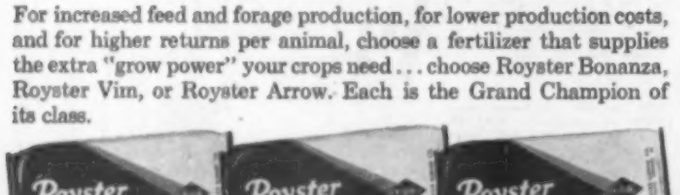
Better feed crops bring *higher profits!*

76 years of Royster Research and Experience is your best crop and profit insurance

There's a Royster plant food scientifically formulated to take care of your soil and crop needs, whatever they may be. Thousands of successful farmers are proving this by demonstrating that when it comes to satisfying plant hunger . . . "hidden" or "acute" . . . you can't beat Royster.

Feed your crops for greater production and profit

For increased feed and forage production, for lower production costs, and for higher returns per animal, choose a fertilizer that supplies the extra "grow power" your crops need . . . choose Royster Bonanza, Royster Vim, or Royster Arrow. Each is the Grand Champion of its class.



BONANZA—A Fortified Soil Ration, for use when *six plant foods* are *not enough*. The finest fertilizer you can buy.

VIM—Supplies top-quality nitrogen, phosphoric acid, potash, calcium, sulfur and magnesium . . . the 6 Very Important Minerals.

ARROW—Supplies top-quality nitrogen, phosphoric acid, potash in high concentration . . . economical when only these plant foods are needed.

Fertilizer . . . and fertilizer only . . . since 1885

Royster

The Quality Name in Plant Food

F. S. Royster Guano Co., Norfolk, Virginia

POULTRY

by Joe W. Sicer

Seven profit boosters

Here are seven ways by which profits per 1,000 layers could be boosted by about $180 annually.

IT HAS been said the man who does not adequately calculate his costs and returns, eventually will be working for someone who does. This is probably as true for the egg laying business as for any other.

An increase of 1 cent per dozen in average price received per dozen eggs for the year would increase returns by 18 cents per bird or $180 per 1,000, based on a production of 18 dozen eggs per bird.

The price of eggs is something many poultrymen think they can do nothing about. To a certain extent they are right, but that extra $180 for a 1-cent-a-dozen increase emphasizes how fortunate we are when egg prices average 5 cents higher than the year before.

Opportunities you have to raise your average price by doing a better job include sending only clean eggs to market, cutting down on the number of cracked eggs, raising egg grade through better holding conditions, and qualifying for a market that will pay a premium for a dependable quality supply.

Egg production . . .

A 3 per cent increase in egg production per bird would yield the extra $180 per 1,000 hens with an average egg price of just 33 cents.

That 3 per cent increase means only an extra 6½ eggs per bird for the year. Unless your production is already considerably above the 18-dozen-per-hen used in all these calculations, that additional 3 per cent should not be too hard to make.

Closer attention to small details of care, feeding, and management could turn the trick. A better job of raising pullets so the flock will go into the laying house with just a little extra zing, and closer watching so as to detect just one day earlier the start of a touch of respiratory trouble (and, hence, more prompt steps to bring it under control) may mean the difference.

Feed conversion . . .

A reduction by .3 of a pound in the feed required to produce a dozen eggs means a saving of slightly more than $180 per 1,000 layers.

A big assignment, you say? Yes, it is. But it certainly is worth going after. It means constant attention to avoid overfilling of feeders, a close watch so mechanical feeders don't overflow at corners, and properly adjusted tube feeders. It may mean a war on rats and mice. It could mean shifting to a smaller-bodied bird.

Feed cost . . .

A reduction of 22½ cents per 100, or $4.50 per ton, in the price you pay for feed would yield the $180. This doesn't mean you should buy a cheaper, inferior feed. But if you can get the same quality at a lower price from some other source, it could be an easy way to save. Part of this saving could come from paying cash. Buying in bulk usually means lower prices. Some folks can make the saving through use of concentrates and home-grown grain instead of a complete mash.

Pullet depreciation . . .

This is the difference between the cost of a ready-to-lay pullet and the price she brings when sold at the end of her laying year. It usually is second only to feed in egg production costs.

Reduce pullet depreciation per dozen eggs by 15 per cent and you improve your profit picture by $180 per 1,000 hens.

Does this mean getting pullets cheaper? That would help but you can't sacrifice quality for price.

You can reduce this cost by 1 cent per dozen if you can get 10 more weeks of 50 per cent production from your layers beyond the time at which you would normally sell them. Figure it out. With a pullet cost of $1.65 and hens netting 45 cents, the pullet depreciation would be $1.20 or 6.7 cents per dozen with 18 dozen eggs. If you can keep those birds laying 10 more weeks before selling them and get 3 dozen more eggs, the depreciation cost per dozen would be cut to 5.7 cents. The 1-cent-per-dozen reduction would equal $180.

Labor efficiency . . .

A 25 per cent increase in labor efficiency is needed to increase net returns by about $180 per 1,000 hens. This, of course, will vary with the cost of labor and the degree of labor efficiency you already have.

Suppose 2,000 hens require half the time of a man you pay $350 a month. The labor cost per dozen eggs would be 5.8 cents. If, through changes in feeding routine or methods used in handling eggs, he could accomplish the same result with only three-eighths of his time, the labor cost per dozen would be only 4.4 cents. This would mean a saving equal to $250 per 1,000 hens.

But if 8,000 layers are requiring full time of a $6,000-man, the labor cost per dozen would be 4.2 cents. With the same man taking care of 10,000 layers (a 25 per cent increase in labor efficiency) the cost would be 3.3 cents or a saving of $162 per 1,000 layers.

Housing costs . . .

It takes about a 40 per cent saving in housing costs to equal $180 per 1,000 layers.

Investment in housing will vary greatly but an average cost, which includes interest, depreciation, repairs, taxes, and insurance, will approximate 2½ cents per dozen. This cost could be reduced by cheaper building (leaving out such features as insulation and fan ventilation), or by simply crowding more birds into the same house. But keep in mind that a 40 per cent saving is needed to amount to $180 per 1,000.

This may be a poor way to save. Inadequate housing accommodations could easily result in poorer egg production, less labor efficiency, and more worries because of troubles from excessive moisture and faulty ventilation.

New MEYER
Automatic Bale Conveyor

Speeds Handling—
Saves Time and Labor

Receives bales directly from elevator without handling, automatically carries to, and ejects bales at any desired location in mow.

Full 20" wide Galvanized Steel Sections to fit any mow.

Speeds hay making. Eliminates hard labor of several men.

Write for prices on Mow Conveyor or Portable Elevator, Today!

MEYER MFG. CO.
BOX 3963 MORTON, ILL.

Always Use CORONA UDDER-TEAT OINTMENT
FOR ALL MINOR WOUNDS, CHAPS, CRACKED SKIN
PROTECT THE ALL-IMPORTANT UDDER with the daily help of Corona—the Woolfat-rich salve with odorless antiseptic. Stays on. Tube in. 6 oz. only $1.20 at dealers or postpaid.
SINCE 1902
Corona' Box A1 20 Keston, O.
TRIAL SAMPLE 10¢

SIMPLY ELEGANT FLATS

Our import from Mexico. A delightful flat heel pump dressy enough to wear to town, yet still "at home" with your casual clothes. Handtooled floral design, tiny buckle trim. Cozy and comfortable — for it's foam cushioned and leather lined. Sizes 4 to 10 (half sizes too), medium width. In summer's newest color, bone . . . or golden tan. ●9.95 Ppd. $3.00 deposit on COD's. Satisfaction guaranteed.

Send for free catalog of largest selection of Mexican handtooled shoes, bags & accessories in U.S.

AMERICANA SHOP 821 EAST TODD AVENUE DEPT. CITY, MICHIGAN

YOUR OWN BREED ON YOUR STATIONERY

We print stationery for thousands of breeders all over the U.S.A. Distinctive style and personal touch. Pictures of your own breed for you to choose from. Write for stationery circular today.

HOARD'S DAIRYMAN Fort Atkinson, Wis.

VACCINATE and BE SAFE!

THE PEAK OF QUALITY
COLORADO
Veterinary biologicals

Dependable Protection!

COLORADO brand Serums and Biologicals have a trouble-free record for over a quarter century in controlling livestock diseases. Produced under Government supervision.

VACCINES and SERUMS
for Cattle, Swine, Horses, Sheep, Turkeys

Local Dealer Nation Wide Distribution
COLORADO SERUMCO.
4950 YORK STREET • DENVER 16 COLO.
SEND NOW FOR FREE CATALOG

P & D SILO UNLOADERS

Greater capacity and more trouble free operation. Feed 200 head in 10 minutes. The only silo unloader on the market sold on a 30 day money back trial under a $75,000.00 guarantee bond. Also heavy duty auger bunk feeders. Dealership available in some areas. Write for information to —

P & D SALES CO., Plainfield 6, Illinois

It's a TITAN

Job Tested
MILK TANK BRUSH
Unquestionably the world's finest line of dairy brushes. Ask your dealer
FLOUR CITY BRUSH CO. 1501 4th Ave. So. Minneapolis, Minn.
PACIFIC COAST BRUSH CO. 2030 East 7th St. Los Angeles, Calif.
FLO-PAC BRUSHES

HANDY HINTS

USE MOTORCYCLE TIRE

We were unable to obtain a tire for the front wheel on our small older model Ford tractor until it was discovered that a motorcycle tire would do nicely.

Wisconsin CLARENCE GERSTNER

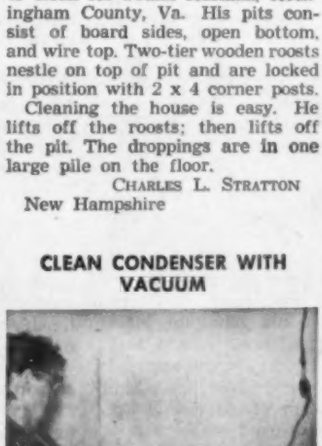
EASY-CLEAN ROOSTS

Mid-floor pits and roosts are easy to clean for Frank Harman, Rockingham County, Va. His pits consist of board sides, open bottom, and wire top. Two-tier wooden roosts nestle on top of pit and are locked in position with 2 x 4 corner posts.

Cleaning the house is easy. He lifts off the roosts; then lifts off the pit. The droppings are in one large pile on the floor.

CHARLES L. STRATTON
New Hampshire

CLEAN CONDENSER WITH VACUUM



Every refrigeration serviceman knows that a milk cooler condenser partly clogged with lint and dust has to run much longer to get the milk cooled. The housewife's vacuum cleaner will do a good job of cleaning out condenser. It is equally beneficial on the home freezer condenser. Often, this is the only trouble the serviceman finds when he is called.

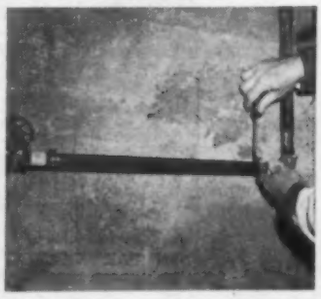
Maryland J. MARSHALL PORTER

ROTATING CLOTHES LINE

A wheel from an old horse-drawn mower and an axel stub make a dandy base for building a rotating clothes drying line. Run out 2 x 4's from the hub bracing with shorter pieces and wire in pyramid fashion. Attach clothesline wire at 2 x 4's as desired. A catwalk can be built making it easy for a short person to hang clothes.

California M. H. MCVICKAR

REDUCES PIPE NOISE



Want to keep water pump noise from penetrating your house via water pipes? Or if you get water from a metered source, do you want to keep meter noise out? A short length of plastic pipe between the meter and the rest of the waterpipe system in a house helps keep noise at a minimum.

Missouri RICHARD L. LEE

HANDY SHELF

Is your farm kitchen a bit crowded? Mount a shelf over the dining table nook, as shown. It puts the toaster or the breakfast orange juice in a handy position. Between meals the shelf has a dozen uses.

This one was made with wrought iron brackets against a tiled wall. Shelf itself is plywood, rubbed down and varnished.

Illinois GROVER BRINKMAN

KEEPS TOOLS IN PLACE

The next time you have a bit of paint left in a can, use it to paint outlines of the tools that you hang over your work bench. The outlines help you find the tools quickly and indicate where they should be put when you are finished with them. You can tell at a glance if any tools are missing.

Iowa HAROLD NEWBERG

CLAY DISTRIBUTION FARMING
LOW COST
OPEN AIR
WINDOWS
Engineered for
NO-DRAFT VENTILATION

Clay designs these windows for high production "climate control". Top sections swing in for no-draft ventilation, keep out rain and snow. Steel frames add strength . . . can't rot, swell or rattle. Easily cleaned, more sanitary — longer lasting. Write for booklet on Clay's complete line of open-air, air-flo and roof windows — also grain doors.

FREE BOOKLETS help you plan low-cost push button farming. See your dealer or check coupon below.

CLAY EQUIPMENT CORP., 415 Olive Street
Cedar Falls, Iowa
Send free booklets on ☐ Milking Parlor ☐ Cattle Feeder ☐ Barn Cleaner ☐ Silo Unloader ☐ Crop Dryer ☐ Hog Equipment
Name
Address
City State
6,000 Dealers Coast-to-Coast

KICKING COWS "GENTLED" INSTANTLY!

with NEW CATTLE GENTL-IZER
ONLY $14.95 PPD

• Make more money milking than selling her! Amazing new Basler Cattle Gentl-izer safely quiets toughest cow in your herd with gentle pressure that prevents cow from moving its hind legs. Easy to put on, no chains, no danger, no injury. Safe, sanitary. Thousands in use. Try 10 days at our risk on money-back guarantee. Specify breed and size when ordering. Only $14.95 ppd. ($15.95 west of the Rockies). U.S. Pat. 2659900; Canadian Pat. Pend.

PRIDE HYBRID, INC (DEALERS AND AGENTS WANTED) Dept. HD-104 GLEN HAVEN WIS.

rusty water?
CLEAR IT
Automatically with
DIAMOND

Removes iron particles AND iron in solution. Prevents rust deposits in pipes, rust spots in clothes. ALSO softens water.

FOR INFORMATION WRITE:
OSHKOSH FILTER & SOFTENER CO.
OSHKOSH, WISCONSIN

New! Best and Lowest Cost
NECK MARKERS

Guaranteed unbreakable solid Nylon marker and contrasting solid Nylon numerals
• SMOOTH-FLUSH with marker face (no engraving or stamping indentation to fill up with "mud and molasses"). Numbers stay clean. 7 color combinations.

Direct-from-manufacturer prices as low as COMPLETE 74¢ (postpaid) with Nylon neck cord in quantities.

Write for FREE FOLDER with full size illustrations and prices in both neck cord and neck chain styles.

C. H. DANA CO., INC. Established 1867
Hyde Park 4, Vermont

YOUNG DAIRYMEN — *Getting started in dairy farming* — No. 20

Teamwork moves a bigger load

Progress comes faster, profits are higher, and there is more time for community service when father and son join in a partnership, says this Michigan dairyman.

by Norman Reeder

IN PARTNERSHIP, Bill Van Frank and his father, Milton, have expanded the family farm to almost three times its former size. They operate 490 acres and have a 60-cow dairy herd.

"IT'S A big help to a young dairyman if he can get his start in partnership with a father who is willing to push ahead. In my case this has been a strong foundation to build on," says Bill Van Frank of Muskegon County, Michigan.

The Van Franks' partnership has helped Bill take the hurdles along the way and to arrive at the age of 31 with half ownership of 490 acres of land with a 60-cow dairy herd and plenty of modern equipment to make every man-hour count, both in the barn and out in the fields.

"Of course, it has been an advantage to be the only son in this family," Bill says modestly. Except for a foster-sister, he was his parents' only child. But on the other hand, Bill has displayed ambition and ability of a high order in boosting the partnership in the last 5 years, up from 170 to 490 acres and doubling the size of the herd.

In recognition of the outstanding job he has done, the Michigan Milk Producers Association picked Bill and his pretty wife, Beverly, who is an expert herself in homemaking, as the outstanding young dairy couple of 1959 and sent them to Washington, D. C., on an expense-paid trip.

Bill has been very active in this association, serving as a delegate, and is now a director of the Muskegon local. It's just one of the community responsibilities he carries, as both Bill and Beverly believe strongly that they have a duty to their neighbors to help make life more rewarding for all.

On the Washington trip Bill made such a good impression that the Young Cooperators Group of the National Milk Producers Federation elected him vice-chairman. The result was that he and Beverly made another trip last fall to the Federation's annual meeting in New Orleans.

Bill learned early in life that the opportunity to earn can be home-grown. Starting with a setting of turkey eggs, he earned the money to buy a pony when he was just about old enough to ride. At 10 he was getting a start in 4-H dairy and poultry projects and taking part in dairy judging contests.

Fellow club members elected Bill to just about every office in 4-H. In high school he was active in FFA, played football, basketball, and baseball, took part in one of the school plays, and was elected to the student council. Activities such as these are valuable training in teamwork and they build self-confidence, according to Bill.

He had his share of setbacks, too. His first dairy heifer dropped more bull calves than heifers. Then, when he had the start of a herd, Bang's disease wiped out all he had built up. He had to start over.

Attended University . . .

To prepare himself further, Bill took the two-year short course in agriculture at Michigan State University. Later, after he had started full-scale farming in the family partnership, he served his two years' military duty. Being able to leave his young business enterprise in Dad's experienced hands was quite a help. Bill and Beverly were married before he went into the service, but they had no children until his term of duty was up. Now they have two bright-eyed little girls.

In 1955, when Bill and his father were drawing up plans to remodel on the home place so they could enlarge the dairy herd, the barn burned. They were lucky to lose only four head of young cattle in the fire.

Despite the loss, this fire really set them on the way to the much expanded operation they have today. As a result of the fire, they decided to buy a nearby farm which already had a remodeled barn and a new milk house, all set up for an operation of the size they wanted. But, to get the buildings they had to buy 160 acres of land which they weren't sure they needed. They have never regretted it.

One big advantage of having the extra land is that now they can grow all the feed grain they can use. Bill likes to feed cows liberally with grain. The best producers get all the grain they will take at a profit, in some cases up to 25 pounds a day. Dry cows get grain, too. Now Bill is growing out the heifers in the barn where he can keep an eye on them and push them for fast development with plenty of grain and hay. By pushing them along, he is able to breed all heifers to freshen in the base period of early fall.

460-pound herd average . . .

Liberal grain feeding is pushing the herd average up to much more profitable levels. This year the 60 cows should complete the test year with an average of 12,500 pounds of milk, 460 pounds butterfat, or a little better.

With 490 acres of land, the Van Franks can have 150 acres in improved meadow crops, 90 in corn, 30 in oats, 30 in barley, and have 100 acres or more left over for high value cash crops. They choose crops which tend to intensify the use of good land. Thus 25 acres of snap beans are off the ground in time for wheat. Winter barley is followed the same season with Sudan grass to chop for the cows in September when the summer's supply of grass silage is fed out and alfalfa fields must be left to prepare for winter.

Feeds in drylot . . .

Cows are fed in drylot through the summer, mostly from two silos of wilted grass silage put up for this purpose. These silos are 14 by 40 and 12 by 40. Grass silage for winter feeding goes into the new 16 by 50 silo the Van Franks built after they bought the new farm. The two larger silos are equipped with power unloaders.

Bill feeds the cows with a self-unloading wagon into homemade portable bunks. He

3 MACHINES IN 1
. . . BLOWER
it's a . . . RECUTTER
. . . GRINDER
it's KOOLS
ALL NEW MULTI-PURPOSE
KB40

FORAGE HANDLER

- Being a "Kools", you know it will blow at high capacity into the tallest silos.
- Recuts high moisture crops (ear corn and grass)—blows any silage with equal ease.
- Grinds shelled corn, oats, barley, ear corn, milo, hay, wheat, soy beans—any small grain—into fine, flour-free palatable feed. Grinds shavings, corn cobs for bedding or mulch.
- Complete screen size selection for full range of controlled cut.
- Change over from one operation to the other in a few minutes. Can be used as blower only.
- Kools new, controlled flow tilt-up hopper feeder available for loading KB40 when using end unloading wagons or dump trucks.

SEE KOOLS ALL NEW KB40, KB30, KB20 NOW...

KOOLS BROTHERS, INC.
P.O. BOX 918
APPLETON, WISCONSIN

PERMASOFT® UDDERSPONGE
Really is the "Uddermost"

Permasoft® Uddersponge is bacteria resistant—won't mildew nor sour. No objectionable odor ever. Can be boiled or placed in any standard sterilant. Won't shred nor crumble. Always soft and flexible, wet or dry. Holds lots more water than rags or paper. Washes and warms the udder quickly, thoroughly. The cow loves it. Upgrades your milk. Costs less than even paper towels. 35c each, package of 3—8" x 8" uddersponges at your dealer or postpaid for $1.00.

This new Roldip® ice cream dipper makes it easy to serve ice cream. It cuts and rolls the portion—saves broken tablespoons, bruised hands. One-piece casting of sanitary metal, easily cleaned. Releases the portion when touched to dish or cone. Price $1.00.

SPECIAL BARGAIN
3 Permasoft Uddersponges and 1 Roldip dipper—postpaid, $1.75. No stamps—cash or check.

ROLL DIPPERS INC., Maumee, O.
Also manufacturers of ice cream dippers and spades since 1935

moves these around to keep cows on firm footing. The lot is nearly 5 acres in size, large enough so even 60 cows don't trample out all the turf in rainy weather. There are four shade trees in the lot and a medium-size tank where the water supply is kept fresh through constant replacement under control of a float valve.

To save time and effort in the morning, Bill keeps cows in their tie stalls overnight straight through the summer. This provides for feeding hay at night and collecting a load of manure every day for use on the fields. But, he wouldn't leave cows in overnight if it were not for the barn cleaner.

First cuttings not put into the three silos are made into field-cured, chopped hay. There isn't much labor in putting up chopped hay and the cows don't push it out of the mangers as much as they do hay from the bale, Bill remarks. However, they bale second and third cuttings to make it easier to move hay from storage outside the dairy barn.

Wilted grass silage is just another way of putting up hay, in Bill's view. It makes them more independent of the weather and they save more of the crop.

Enlarging the farm and the dairy herd has actually lightened the work load, Bill explains. For one spell of two or three years, he missed no more than five or six milkings. Now they have a full-time hired man who does the evening milking as a regular chore. He and Bill spell each other on weekends. Either man can milk the 60 cows in about two hours, using four units and a milk conveyor which does the "carrying."

The milk conveyor at $700 looked like the logical choice when compared with a pipeline installation at several times that price. The conveyor, which works off the regular milker vacuum line, takes the milk through an over-size strainer and transports it through a flexible plastic hose to the bulk tank. The hose is carried through the barn on hooks from the ceiling.

When the milking is done, the hose coils up handily on a big reel. The whole unit rolls along on a two-wheeled cart. Bill installed a second vacuum pump to hold the vacuum steady with four units working, plus the milk conveyor. When they had to carry milk by hand, it kept a man on the run to handle three units. Both of the vacuum pumps are connected to the same line, working together in place of one big pump.

Extra acres make it profitable to cash in on the time-saving capability of new, big-capacity equipment for field work, too. Last year they added a new five-plow diesel tractor and self-propelled combine.

Being among the first to make use of new things in farming is a tradition in the Van Frank family. Milton, the father, had one of the first two-row cultivators in the area. He started spreading marl and growing alfalfa in 1912. He was consulting the first county agent on fertilizers in 1917.

Started new ideas . . .

Among many things the Van Franks have introduced to their neighborhood in recent years are the field forage harvester, the self-unloading wagon, the large diameter silo (it should have been larger, is Bill's only regret), power silo unloaders, and the weed sprayer.

Even though they are quick to adopt new things, the Van Franks are sticklers for paying cash. If they have to wait a year or two to accumulate the price of a piece of new equipment, they wait.

This might not be possible if they didn't have a big partnership operation, Bill says. With nearly 500 acres and 60 cows they can quickly make one piece of improved equipment earn enough to pay for the next.

To make a partnership click, according to Bill, you need three things: **a willing son, a willing father, and a good written agreement.** The Van Franks have a standard father-son partnership agreement as recommended by the Michigan State University. Each partner gets a monthly wage and accumulated profits are divided.

THE END

New Jersey Holstein sets national record

A 15-year-old registered Holstein, Creator Rag Apple Lochinvar, Very Good, set a new high for 15-year-old Holsteins milked twice daily on HIR test.

"Lochinvar," purchased by a 19-year-old New Jersey 4-H'er, Kay L. Mooney of Flanders, completed an official 365-day record of 25,190 pounds milk, 961 pounds butterfat. She was purchased last October in the Sunny Vale Farms dispersal.

Coincidentally, the previous record was held by Dunloggin Mistress Gracious, Excellent, owned by two other New Jersey "cowgirls," twin sisters Patricia and Roberta Behrman of Newton. That record, completed in 1959, was 20,677 pounds milk, 851 pounds butterfat.

"READY TO GO – in Rain, Sleet or Snow"
. . . says George Szczech; Stanley, Wis.

One of thousands of satisfied Farmway Barn Cleaner users across the continent

You can count on the heavy duty construction of Farmway barn cleaners for 24 hour dependability—365 days a year. Drive unit has plenty of reserve power for cold weather operation. Rain, sleet or snow can't reach transmission parts. Large capacity chain oiler assures lubrication in all kinds of weather. Get "four season" protection from costly breakdowns. See your local Farmway dealer, today!

THESE IMPORTANT FEATURES ARE PROVEN "BEST BY TEST":—

- *Mated Components* — Heavy-duty drive and gutter chain matched to work as a team.
- *Rigid Elevators* — Sturdy center beam "backbone" construction—automatic chain tension control—available in Douglas Fir or heavy gauge steel.
- *Safety First* — Releases on drive unit and *individual flights* protect machine from costly breakage.

FARMWAY INC MANAWA, WIS.
Dept. HD

SOLD AND SERVICED throughout the U.S. Dealerships open in some areas. Write for complete information.

RATR-BAIT *Kills Rats Fast*
Proven way to kill rats—WARFARIN RATR-BAIT works where traps and poisons fail. Powdered form, easy to use, no fuss or muss. Rats crave it! None better. One pound can only $1.00 at your dealer, or write giving dealer name.
WARFARIN RATR-BAIT
Dr. Roberts Veterinary Co., Waukesha, Wis.

Is your subscription running out? Renew now! Five full years only $3.

HEAVE HAY – The LOW-COST WAY

FARMRITE PORTABLE ELEVATOR-CONVEYOR

Light-weight — and made of tubular steel in 18, 24, 30 ft. sections for one-man handling. It handles any size or shape bale — any gas or electric motor ¼ h.p. up will run it.

Extendable — Add extra sections by simply inserting pin through interlocking drive sprocket — and move bales any desired distance — or up and over for stacking.

For permanent set-ups, mow hangers, bale ejectors are available — 6 & 12 ft. extensions fit Farmrite Conveyor System to any size barn.

See Your Dealer or Write —

FARMRITE SPRAYER, INC.
Juneau 2, Wis.
SPRAYERS • PARTS • ACCESSORIES

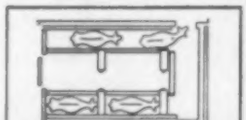
IN MID AMERICA
SEE CCA CO-OP DISPLAYING THIS "SYMBOL OF FARM LEADERSHIP"
CONSUMERS COOPERATIVE ASSN.
KANSAS CITY, MO.

IN OHIO SEE
LANDMARK
FARM BUREAU COOPERATIVES
FOR Universal MILKING EQUIPMENT

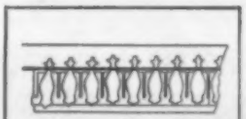
GRADE A ALL THE WAY

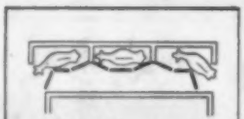
Universal
Supermatic PIPELINE MILKING
FOR QUALITY PRODUCTION AND GRADE "A" PROFITS

SIMPLIFIED COW-TO-TANK MILKING
Supermatic Milking-Conveying-Receiving-Cooling-Sanitizing . . . the easiest way to Grade "A" profits. Complete installations to fit your particular needs. Parlor or Stanchion Barn Supermatic pipeline milking for more efficient dairy farm operation.


WALK THRU SYSTEM

HERRINGBONE SYSTEM


STANCHION SYSTEM


TANDEM SYSTEM

Universal
VACUUM
BULK MILK COOLER
The ultimate in bulk milk cooling and protective storage.

- VACUUM EFFICIENCY
- MECHANICAL CLEANING
- 10 YEAR WARRANTY

FREE
PIPELINE MILKING CATALOG
Get the facts! Write for this new Universal catalog.

Universal MILKING MACHINE DIVISION
NATIONAL COOPERATIVES, INC.
[illegible] FIRST AVENUE, ALBERT LEA, MINNESOTA Branches in Waukesha, Wis. & Syracuse, N.Y.

Universal NATIONWIDE SALES AND SERVICE

Farm Bureau Services, Inc.
Lansing, Michigan
Farmers Union Central Exchange
St. Paul, Minnesota
Universal Milking Machine Division
Syracuse, New York
Universal Milking Machine Division
Waukesha, Wisconsin
Farmers Cooperative Exchange
Statesville, North Carolina
Farmers Union State Exchange
Omaha, Nebraska
Indiana Farm Bureau Cooperative
Indianapolis, Indiana
Midland Cooperatives, Inc.
Minneapolis, Minnesota
Pacific Supply Cooperative
Walla Walla, Washington
Arata Dairy Supply
Petaluma, California
Southern Farmers Association
North Little Rock, Arkansas
Nashville Milking Machine Co.
College Grove, Tennessee
Brooks Supply
Dallas, Texas
Brooks Supply
Jackson, Mississippi
Utah Poultry & Farmers Cooperative
Salt Lake City, Utah
Pennsylvania Farm Bureau Cooperative
Harrisburg, Pennsylvania
Faulkner Southern
Dundee, Illinois
Joe Edens Associates
Madison, Georgia
Cooperativa Cafetera de Puerto Rico
Ponce, Puerto Rico
Southern States Cooperative
Richmond, Virginia
L. M. Hall Refrigeration Service
Miami, Florida

Three inoculation methods

According to University of Missouri field crops specialists, any of three methods of inoculating alfalfa seed will do a satisfactory job.

The newest method is pre-inoculation by a vacuum process which forces inoculant into the seed. This process has been tested extensively and results have been equal to those obtained with older methods. The inoculant cannot be seen on the seed.

Such seed will carry a "Noculized" label. This label will list an expiration date. After this date, the seed will need to be reinoculated.

With another type of pre-inoculation, the seed dealer applies a material which coats the outside of the seed. This coating can be seen easily. Seed inoculated this way also has an expiration date.

The oldest method, and still most generally used, is the farmer buying the inoculant and applying it himself. This method has some limitations as to expiration date and the way the seed is handled after it has been inoculated.

Since all three methods are satisfactory, the two newer methods are simply a matter of added service. Some farmers will consider this added service worth the extra cost — about $2 per 100 pounds.

NOTE: In limited tests conducted by the U.S. Department of Agriculture, the root nodule bacteria on preinoculated seed remained viable for approximately four months. Plants grown from preinoculated seed, stored five months or more, often were not properly inoculated. Preinoculated legume seed past the expiration date definitely should be reinoculated before planting.
—THE EDITORS

640 million messages for milk during 1961

About 640,000,000 reader impressions will "Speak Up for Milk" in 1961. This is the estimated impression total for milk advertising to be carried in "Saturday Evening Post," "Reader's Digest," "Today's Health," and Sunday newspapers.

The American Dairy Association will run four-color ads twice a month in the "Post" from February through December; every other month in "Reader's Digest," and monthly in the American Medical Association's publication, "Today's Health." This magazine campaign will be supported by Sunday newspaper ads throughout the country.

In 1961 the American Dairy Association's continuing program for milk will be based on consumer acceptance of protein. Milk is the **only** beverage that contains protein in any sizable amount.

The campaign will be built on established occasions for drinking milk. In spring, the theme will be "Drink the Protein Snack;" in summer, "Drink the Protein Lift," and in the winter, "Drink the Protein Nightcap."

In addition, the American Dairy Association will offer three different "Don't Run Out! Get More Milk for the Weekend" promotion packages. This time-tested campaign will be supplemented seasonally with special spring, summer, and fall promotions to sell fresh, chocolate, and buttermilk.

SPECIAL OPPORTUNITIES

— Where Buyer and Seller Meet —

The rate for advertising in this department is 35 cents per word per insertion, except for "help wanted" and "position wanted" advertising which is only 20 cents per word per insertion. Count address. "J. W. Foley, Route 13, Green Bay, Minnesota," is considered as eight words. Blind advertisements must be signed: "BOX ☆, care Hoard's Dairyman, Fort Atkinson, Wisconsin" and count as 8 additional words. Count each initial or group of figures as a word. SEND CASH OR CHECK WITH ORDER. Copy must reach us one month ahead of date of issue. NEW ADVERTISER MUST FURNISH REFERENCES. Send order to HOARD'S DAIRYMAN, Fort Atkinson, Wisconsin. Different rate for Livestock Display advertising.

STOCKMEN'S SUPPLIES

HORN WEIGHTS. Made in 4 sizes ½ lb., 1 lb., 1½ lb., and 2 lbs. Tattoo markers $5.75 postpaid. Includes set of numbers, bottle of ink, and full directions. We also carry complete line of ear tags, neck chains, veterinary instruments, supplies, serums, remedies; in fact, everything for the stockman. Write for free catalog. BREEDERS SUPPLY CO., Council Bluffs, Iowa. 4-*

ARTIFICIAL breeding equipment. Largest, most complete line. Write for free catalog. NASCO, Fort Atkinson, Wisconsin. 1-*

ARTIFICIAL INSEMINATION equipment. World's leading supplier. Write for free catalog. INSEMIKIT COMPANY, INC., Baraboo, Wisconsin. 3-*

MASTITIS TESTERS. Send for free sample and literature. LARAY, INC., Pataskala, Ohio. 11-*

BIG SAVINGS on drugs, vaccines and supplies for all livestock. Free catalog. VETSCO, Box 6305, Minneapolis, Minnesota. 23-*

KILL BITTERWEEDS, wild onions and dog fennel with R-H Weed Rhap. Low cost. Will not injure grass, grains; not poisonous. For free information write REASOR-HILL CORPORATION, Box 36HD, Jacksonville, Arkansas. 1-12

SEND CARD for free wholesale catalogue of veterinary supplies and equipment. EASTERN STATES SERUM COMPANY, 1727 Hardan Street, Columbia, S. C. 2-23

VETERINARY SUPPLIES (wholesale) free catalog. WESTERN LIVESTOCK SUPPLY, Box 66, Delta, Colorado. 3-*

SPECIAL MASTITIS OINTMENT. (Procaine Pencillin 100,000 units. Dihydrostreptomycin 100 mg., 10% Sulfamerazine, Sulfathiazole Cobalt 5MG. in sesame oil base disposable syringe). Dozen $4.50 prepaid. (Pen-Fz $9.00 dozen syringes). Withhold milk from treated quarter for 72 hours. Quantity savings. KENSINGTON VETERINARY AND POULTRY SUPPLY, Kensington, Connecticut. 6-*

CATTLE MARKERS

ALL-NYLON — NO PAINT to chip out. Many colors. Free catalog. CREUTZBURG & SON, Malvern, Pennsylvania. 10-*

LARGEST, most complete line of cattle markers and livestock supplies. Free catalog. NASCO, Fort Atkinson, Wisconsin. 14-*

DAISY CATTLE MARKERS, solid brass tag and brass-plated chain for horns or neck. Write for free catalog. GOLDEN ARROW FARMS, Dept. C, Huntington, Indiana. 10-*

E-Z REDD TAGS make identity fast and accurate. Colorful contrasting numbers, wear resistant plastic. Available with neck chain and fasteners. Write for free agricultural supply catalog from the world's leading source of artificial breeding equipment, breeding and show ring equipment, plus hundreds of other farm items. INSEMIKIT COMPANY, INC., Baraboo, Wis. 3-*

CATTLE EARTAGS legible 50 ft., chains, nylon rope sets, anklets. Samples. Nearest dealer. BOCK, INC., Mattoon, Ill. 3-spl.

FARM EQUIPMENT

DEPRESSION PRICES, WE SELL CHEAP, save 75% off new and used tractor parts, crawlers, wheel tractors. 190 makes, models. Catalog ready. Send 25c SURPLUS TRACTOR PARTS CORP., Fargo, N. D. 2-6

SAVE 40%. Hydraulic manure loaders. VAUGHN MANUFACTURING, Waseca, Minnesota. 4-*

10-TON TRUCK HOIST $199.99 — $50 down, $50 monthly. Can use agents. DUNBAR, Minneapolis 8, Minnesota. 6-4

FREE CATALOG, welders, kits. Build 350-ampere welder using aircraft generator, plans 25c. DUNBAR, Minneapolis 8, Minnesota. 6-4

HEAL CONTROLLED AIR barn hay dryers make "best cow feed on earth." Automatic handling. Fast, efficient. Feed costs drop,—production and profits jump. Write HEAL COMPANY, Box 156H, Waukesha, Wis. 6-2

NEW EXPANDABLE farrowing crate. Steel $26.50. Introduction offer. THE EVR-KLEEN COMPANY, INC., St. Charles, Minn. 6-4

WANTED: Steam traction engine, repair parts. Whistles. 2-ton spur geared hoists. FRED HOFFMAN, Petoskey, Michigan.

DAIRY EQUIPMENT

USED BULK MILK TANKS. 200-250-300-400-gallon sizes. Write: P. O. BOX 246, Cedarburg, Wisconsin. 6-*

USED, BULK PICKUP TANKS, three 1650 gallon for 102" C.A. chassis. One 1500 gallon for 84" C.A. chassis. All have been reconditioned and have a one year guarantee. Priced to sell. G. H. HICKS & SONS, Louisville 11, Kentucky. 6-2

WANTED: Used bulk milk coolers. BULK MILK SERVICE, Box 246, Omro, Wisconsin. MU 5-5588. 6-3

CHERRY BURRELL bulk tank. 400 gallons, good condition. $750. FLOYD B. CRAWFORD, Route 4, Box 33, Lake City, Florida.

DELAVAL MAGNETIC two-unit milker, pail type, complete system. $225. MAX MORGAN, 2349 S. Spring, Springfield, Illinois.

SILOS

TRIED, PROVEN! Forage saver glass-lined silo, forage server automatic bunk feeder, Sila-Save ensilage preservative, Even-Flo silage distributors. Farmers, dealers write: SHERROD SILO SALES, Strawberry Plains, Tenn. 2-*

AUCTIONEER SCHOOLS

LEARN AUCTIONEERING, terms, soon. Free catalog. REISCH AUCTION SCHOOL, Mason City, Iowa. 23-*

LEARN AUCTIONEERING. Free catalog! MISSOURI AUCTION SCHOOL, Box 8466-D4, Kansas City 14, Missouri. 19-*

BUSINESS OPPORTUNITIES

FREE PICTURE FOLDER, "How to make $3,000 yearly, sparetime, raising earthworms!" OAKHAVEN-24, Cedar Hill, Texas. 31-*

A SECOND INCOME from oil can end your toil! Free book and oilfield maps! No obligation. NATIONAL PETROLEUM, Pan American Bank Building-HD, Miami, Florida. 6-2

FARMS WANTED

MORE DAIRY FARMS needed to sell. Extreme Northern Illinois, Southern Wisconsin. H. E. GILBERT, Realtor & Associates, Elkhorn, Wisconsin. (Over 20 years successful experience at your service.) 6-*

FARMS FOR SALE

GOOD SOUND WISCONSIN farms. Pfister Farm Agency, BERT PFISTER, Mt. Horeb, Wisconsin. 15-*

VIRGINIA livestock, dairy farms and country estates. P. M. BROWNING, Realtor, John H. Hitt, Associate, Culpeper, Virginia. 12-*

FREE CATALOG describes Wisconsin farms for sale. Your copy is ready now. Write LOGANWAY, INC., Fort Atkinson, Wisconsin. 1-*

SPECIAL CENTRAL WISCONSIN farm bargains. 80 acres, 60 plowed. Productive land. 7-room home. Barn. Other buildings. Near Marshfield. $7500. Terms. 200 acres, 110 plowed. Modern home. 2 basement barns. 45 Holstein cattle. Modern machinery. $34,000. Terms. Milk assignment. PALMER VINGER REALTY, since 1922. Accredited Farm Broker, Greenwood, Wisconsin. 5-3

156-ACRE DAIRY FARM, 37 head cattle, full line large machinery. Barn: 40x76. Machine shed: 18x50. Silo: 14x40. House: 8 rooms, bath. Only $11,000 down for complete setup. DAIRYLAND REALTY, Abbotsford, Wis.

700 ACRES, CENTRAL WISCONSIN, 144' barn, 6-bedroom modern house, many other buildings, lots of personal property. $150 per acre takes all. Many other farms. Send for our free catalog. STEVENS AGENCY, Spencer, Wisconsin. Phone OLiver 9-2291.

FOR SALE: Dairy-potato farm. 240 acres; 135 cultivated. Modern home, large barn, silo, potato warehouse. Good hunting, fishing area. OTTO WINKEL, Cooks, Michigan; Upper Peninsula, Schoolcraft County.

100 ACRES LEVEL LAND, edge of Evansville, Wisconsin. 75 workland. Complete set of buildings, running water. With or without personal. BOX 629, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

187-ACRE top quality dairy farm. Land contract 25% down. 170 acres nearly level cropland. Top production every year. Barn 38x100 with 37 steel stalls, barn cleaner, 200-gallon bulk tank. 20' addition for youngstock. 3 silos, one Smith Harvestore 20x40, 30x60 implement shed, 2 cribs, 2 granaries, and other buildings. Modern 3-bedroom home with bath and furnace. All buildings in top condition. On state highway, all in one piece, and close to lively, industrial town. Reduced to $62,000. Personal available. For further information, contact ROY DERRIS, c/o Loganway, Inc., Realtors, Fort Atkinson, Wisconsin.

200-ACRE DAIRY FARM, 50 head of cattle, all necessary machinery, all feed, good buildings with beautiful 2-apartment home, regular show place. About $15,000 down payment on all, total price on everything $40,000. Immediate possession. FLOYD JOHNSON, Marshfield, Wisconsin. Telephone Lindsey 1304. 7-4

128-ACRE DAIRY FARM, (extra 40 acres optional). Good land, good 3-bedroom modern home, oil heat, 10-yr-old dairy barn, 36 stanchions with water. Barn cleaner, tramp shed, large hay barn, with bunks. Cemented barn lot, 3 silos, electrically heated waterers, 3,000-lb. bulk tank, pipeline milker. 5 miles south of South Bend, Indiana. 20% down. Owner retiring. KEYSER AGENCY, Plymouth, Indiana. 7-2

650 ACRES with considerable bottomland. House, buildings, diesel tractor, some equipment, sawmill, school route. Near McBride. Full price $13,900 with terms. Write 3 CREEKS RANCH, Croydon, B. C.

DAIRY HERD AND EQUIPMENT: Grade A milking parlor, bulk tank, 181 acres, Little Rock milk shed, lovely 3-bedroom modern home, $38,000, terms. BOX 633, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

147-ACRE Beef and hog farm, good buildings, running water, 2 miles town, quick sale, $14,800. WM. McSHERRY, Salesman, Mt. Horeb, Wisconsin. Smith Johanning, Inc., Dodgeville. 7-2

LAKEFRONT DAIRY: Beautiful, productive 160-acre Minnesota farm bordering sparkling lake. Takes only $4,000 down! 115 acres tillable, pasture for 40 head, 34 alfalfa. Ideal setup for money-making dairy operation. Good 6-room, 4-bedroom house. Lovely homesite on scenic hillside. Very good barn, new milk house, granary, new steel crib, poultry house. Secluded, yet only 4½ miles town. Rich, full rural living awaits you here at $14,500, only $4,000 down. Free spring catalog, the nation's biggest, 176 pages, over 1,250 photos, bargains coast to coast! UNITED FARM AGENCY, 1304-HD Consumers Building, 220 South State Street, Chicago 4, Ill.

POSITIONS WANTED

WANT POSITION as farm manager, age 36, married, 2 children. Lifetime experience with top Wisconsin Holstein and Guernsey farms. Desire modern Grade A registered dairy farm in Wisconsin. References furnished. Write: BOX 631, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

BOY, SEVENTEEN, wants dairy farm work. Some experience. ROLLIE WILSON, Grinnell, Iowa.

DAIRY FARM MANAGER—36 years old, married, 3 children. Successful Graham graduate. Life experience. Not a college book man, strictly top cowman. Non-drinker. Show experience. Do 90% of my veterinary work. Successful in treating mastitis and breeding troubles. Top crop production. Operate and maintain farm machinery. Interested in large operation. Would consider small operation that wants to grow. Best references. BOX 627, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

ARTIFICIAL INSEMINATOR: Experienced with both beef and dairy. Qualified for management and show work also. BOX 626, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

WOULD LIKE TO buy or spot dairy cattle—by a reliable, experienced middle-aged man living in Madison, Wisconsin. BOX 626, care Hoard's Dairyman, Fort Atkinson, Wisconsin. 7-2

HELP WANTED

WANTED: Experienced artificial breeding technicians. Through our frozen semen program and freezers, areas may be developed in any state. References required. Write PIPER BROTHERS FARMS, Watertown, Wisconsin for details. 9-*

OPPORTUNITIES for men who want steady employment on a large certified milk farm. Paid vacations, sick benefits. Write for information. We want sober and reliable men. WALKER GORDON LABORATORY COMPANY, Plainsboro, N. J. 9-spl.

WANTED: Married man, over 30, to operate modern 200-acre dairy farm in Northwestern Wisconsin. Must be good with cows and young stock, experienced in modern farm practices and machinery. Family help desirable. Modern house and other extras furnished. Good opportunity for steady, reliable man. Give qualifications and references in first letter. BOX 630, care Hoard's Dairyman, Fort Atkinson, Wisconsin. 7-2

MILKER-HERDSMAN wanted for growing Jersey dairy, presently 160 cows, located near Sacramento, California. Please apply in writing, stating experience, references, family status etc. REIMAR BREDTHAUER, Route 2, Box 2752, Elk Grove, California. 7-3

HELP WANTED—WOMEN

WOMAN for general housework—to live in. Will consider couple. MRS. C. H. WHITE, Box 156, Route 2, Mundelein, Illinois (phone LOcust 6-4117).

SALESMAN WANTED

SERVICE YOUR AREA—agents, dealers, farmers make $125 up weekly distributing nationally advertised Campbell's Gro-Green liquid and 100% soluble crystal fertilizer concentrates. No investment. Samples free. Ideal proposition for corn and feed men. CAMPBELL COMPANY, (Est. 1928), Rochelle 30, Illinois. 4-5

SENSATIONAL new longer-burning light bulb. Amazing free replacement guarantee — never again buy light bulbs. No competition. Multi-million dollar market yours alone. Make small fortune even spare time. Incredibly quick sales. Free sales kit. MERLITE (Bulb Division), 114 East 32nd, Dept. C-74D, New York 16. 7-2

AGENTS WANTED

AGENTS AND DEALERS: Sell low cost, water-driven milk cooler in Northern states. Write for details. A. MILLER, 276 Conklin, Penticton, B. C., Canada. 5-spl.

EXCLUSIVE DISTRIBUTORSHIPS available for many excellent territories. Our new and outstanding line of milking machine rubber for all makes of milkers is sold with an unqualified guarantee of customer satisfaction or money back. Write NORTH AMERICAN RUBBER COMPANY, Bellevue, Ohio. 7-2

$2.50 PER HOUR or more for part or full time route work. Large repeat orders. Man or woman. Write McNESS COMPANY, Freeport 22M, Illinois.

HAY AND BEDDING

GRADED DAIRY ALFALFA and other grades hay. ART CALLARI HAY COMPANY, Upper Sandusky, Ohio. 20-*

DAIRY CUT — Bright green Colorado coarse chopped steamed alfalfa under patented process — practically no dust — alfalfa leaf intact. 30-ton cars 100's — great milk producer. Samples and prices: NEUMOND, INC., 5100 Oakland, St. Louis, Missouri. 5-4

SEEDS AND PLANTS

CERTIFIED PLANTS. Pay on arrival. Frostproof cabbage, onions, tomatoes, pepper, broccoli, Brussels sprouts, collards, cauliflower, 200, $1.50; 500, $2.50; 700, $3.00; 1,000, $3.50; 5,000, $16.25. Leading varieties, mixed as wanted, moss-packed. TEXAS PLANT FARMS, Jacksonville, Texas. 7-2

DOGS

GENUINE English Shepherd and Collie Pups. Healthy and strong. Guaranteed heelers. Year's trial. Choice of sex. Spayed females a specialty. Priced right. CLOVERDALE KENNEL FARM, Ackley, Iowa. 18-*

WORKING BORDER COLLIES, puppies from imported parents. HOWARD McCLAIN, 2820 McClain Road, Lima, Ohio. 23-*

SHEPHERDS, COLLIES. Outstanding Heelers. Watch Dogs. ZIMMERMAN FARMS, Flanagan, Illinois. 2-*

SWINE

WISCONSIN FEEDER PIGS for sale. 40 to 60 lbs. Sold direct on weight basis. Also heavier pigs. 48 hour liability. C. ACKER, Middleton, Wisconsin. Phone TE 6-3451. 6-*

MISCELLANEOUS

WANTED: Old fashioned sausage making equipment, chiefly sausage mixers. BOX 619, care Hoard's Dairyman, Fort Atkinson, Wis. 6-3

CLIPPER BLADES sharpened like new $1.00 postpaid. Shipping labels free. BUCYRUS BARBER SUPPLY GRINDING COMPANY, Bucyrus 2, Ohio. 7-spl.

OF INTEREST TO WOMEN

$2.00 HOURLY possible sewing our ready cut aprons at home. Spare or full time. Experience unnecessary. Write HANKY APRON COMPANY, Caldwell 17, Arkansas. 19-*

AVERAGE $2.00 HOUR sparetime, assembling our lamps. Simple. Easy. No canvassing. Write: OUGOR, Caldwell 24, Arkansas. 4-*

STOP throwing away those boxtops! They're worth money! Some 25c each! Inquire: BOX-TOPS-DD, Cedar Hill, Texas. 6-*

HAVE A PROFITABLE HOBBY sewing aprons, children's wear. Details free. REDIKUT'S, Loganville 15, Wisconsin. 9-spl.

DAIRY CATTLE

NOTICE TO BUYERS — WHEN BUYING DAIRY CALVES OR DAIRY CATTLE, inspect and select cattle personally. If impossible, have them checked by someone in whom you have confidence. Complete understanding in writing between buyer and seller is very important. Should you buy on approval, it is advisable to have animals inspected by veterinarian on arrival before acceptance. Report serious health problems to your state veterinarian. — Hoard's Dairyman.

KENYON BROTHERS FARM serving the dairy farmer for forty years. Large selection of choice Holstein cows and first calf heifers, fresh and close springers, service bulls. T.B. and Bang's tested. In carload or truckload lots. KENYON BROTHERS CO., Elgin, Illinois. Phone SHerwood 1-1818. 19-*

CANADIAN HOLSTEINS direct from the farms. Registered, T.B. and Bang's certified. MIDDLESEX HOLSTEIN BREEDERS ASSOCIATION. Phone Lambeth OL 2-2616. Hardy Shore, Glanworth, Ontario. 15-*

HIGH QUALITY Holstein and Guernsey springers and heifers all sizes. J. W. & BILL GEURKINK, telephone 322 or 21F31, Baldwin, Wisconsin. 15-*

REGISTERED HOLSTEINS: A few service age bulls, some younger males, foundation females and heifers. Nearly all sired by excellent sires and from classified dams with HIR records. SanMarGale FARMS, Box 265, Lebanon, Ohio. Phone 5-2606. 22-*

WISCONSIN DAIRY CATTLE. Attention: Dairymen and cattle dealers. Top springing cows and heifers. Also open heifers any size. We have drivers available to buy direct from the farmers or will fill orders as directed. GONNERING BROTHERS DAIRY FARM, Route 1, Kaukauna, Wisconsin. Phone Little Chute, Wisconsin 87 8-3332 or 87 8-2576. 1-12

HOLSTEIN SPRINGER HEIFERS and young springer cows; large selection of open and bred heifers. CHESTER FROBERG, Valparaiso, Indiana. Phone HO-2-1060. 5-4

KEATING BROTHERS FARM offers large selection fresh and springing selected cows and heifers, strictly quality. Buying on order saves time and money. Call or write FORT ATKINSON, WISCONSIN. Telephone JOrdan 3-5905. 5-*

HOLSTEIN HEIFERS, springing first calf heifers and young cows. Excellent quality. Write or telephone for prices and details. WALTER McFARLAND, Watertown, Wisconsin. Telephone 940. 1-spl.

ATTENTION DAIRYMEN and Cattle Dealers: Indiana's largest selection of grade and purebred Holstein cattle, bred for production and show type, will sell one or 500. We will ship subject to approval. Cattle eligible for any state. Vaccinated, T.B. and Bangs accredited. Terms to reliable parties. BOTTEMA FARMS, Rural Route #2, Box 306, Indianapolis, Indiana. Phone TW 9-4375. 19-*

CHOICE HOLSTEIN cows and heifers, all ages. Vaccinated. T.B. free. Fieldman available, or will fill orders as directed. Whitewater Dairy Association, DEAN HARNDEN, Whitewater, Wisconsin. Phone Palmyra 358. 1-*

TOP QUALITY HOLSTEIN cows and heifers. Bred or open. Calfhood vaccinated. VERNUS STROMMEN, Blanchardville, Wisconsin. 2-6

WE ARE NOW READY to fill your orders for Holstein and Guernsey cows and heifers. Shipped direct from farmer to you on commission basis. CHET BURNSTAD & SON, Tomah, Wisconsin. Phone Tomah 406-M or 752-R-12. 16-*

DAIRY CATTLE SALES, every Thursday, April through October. Top springer cows and heifers. 400 to 600 head every sale. MATTES LIVESTOCK MARKET, Thorp, Wis. 10-*

WISCONSIN HOLSTEINS for the Southern states. Financing available. Heifers and cows on hand at all times, originating from the best producing herds in Southern Wisconsin. Artificial breeding. Bang's and T.B. tested for any state. Call P. E. ELAM, Marshall, North Carolina; phone 3451, or Mars Hill, North Carolina, 2381 nights. 6-*

CANADIAN Registered Holsteins. Young vaccinated cows and heifers. Buy direct from the farms. Elgin County Holstein Breeders Club. Telephone Talbotville, Ontario 6-R-12. DON SHORE, R.R. #6, St. Thomas, Ontario, Canada. 7-*

REGISTERED Holstein and Ayrshire cows and heifers, Bang's certified herds. PEARSON BROS., Waterdown, Ontario, Canada. 13-spl.

HOLSTEIN COWS and springer heifers with size and production. Bought directly from leading herds. Sold at low overhead prices. We fill orders, before you buy contact us. DEAN YODER, Danvers, Illinois. Phone Yorktown 3-4774. 5-spl.

FOR SALE: Holstein springing heifers and cows. Good selection of open and bred heifers. R. B. BRICHER, St. Charles, Illinois. Phone JU-4-2347 days, JU-4-2895 nights. 7-24

MORE SPECIAL OPPORTUNITIES ON NEXT PAGE

How I manage early pasture

by Eben Brown

THE problem of getting the most from early spring pasture and avoiding excessive waste from trampling and plant maturity is of concern to most dairymen. This is particularly true where this early pasture is comprised of fast-growing grasses such as Kentucky bluegrass, orchard grass, Reed canary grass, or the annuals such as winter wheat and rye.

For a number of years, I followed the practice of holding my milking herd off pasture until the grass (Kentucky bluegrass) was deep enough for them to fill up in an hour or two of grazing, after which they would lie down, repeating the process when they became hungry again.

Depending upon how adequate the barn feeding program had been, this procedure brought excellent results, including greatly-increased milk flow and a temporary increase in butterfat test.

On the other hand, while on this lush feed, the cows became extremely laxative and it was difficult to persuade them to eat enough grain and dry roughage to maintain their body weight.

Tried several methods . . .

During these years, I tried various recommended ways of overcoming my problem by feeding the cows hay before turning them out to pasture, keeping them in mornings, bringing them in early in the afternoon, and so forth.

This worked — to a degree — but when I finally awoke to the fact that each year by the first of June I had a lot of grass going to waste — grass that had cost me good money to grow and that would cost money and time to make into hay that I did not want — I decided there must be a better way.

The problem was how to more completely utilize the rapid growth of these early grasses and annuals that were needed for pasture before the legumes were ready, and how, during this time, to maintain body weight on such laxative feed.

The plan I put into practice the following spring worked so well I feel free to recommend it:

1. Limit the amount of early pasture to the adequate minimum needed to carry your herd until the summer rotation of legumes, or what-have-you, is ready.

2. Turn the milkers out into this pasture **before** there is enough feed to satisfy them.

No more wasted feed . . .

These two combined practices were the answer to my problems of herd health and wasted feed.

The cows came into the barn hungry enough to eat all the hay and grain needed to maintain their body weight and to balance their gain in production.

With the gradual transition to full pasture feeding, the cows did not become overly laxative. They ate the early pasture just as fast as it grew, which kept it tender, nutritious, and palatable. When my Ladino was ready to pasture, there was very little of the early feed left to go to waste.

No two farms are exactly alike. What applies to one may not apply to the next, but the experiences of one farmer may be modified to help the next. This program was the answer to my problems. It may help you to answer yours.

Special Opportunities

DAIRY CATTLE

FOR SALE: Buy your vaccinated dairy cows and heifers direct from the farmers where quality prevails. GEORGE E. SWANSON, Rice Lake, Wis. Phone CEdar 4-4717. 6-19

CHOICE SELECTION of Holstein dairy cows and heifers, fresh and close springers. T.B. and Bang's tested. Calfhood vaccinated. Registered bulls service age. HARTMAN & SON, Hampshire, Illinois. Phone 2631. 3-*

SOUTHERN DAIRIES buy Northern Holsteins raised in Southwest Missouri. Have over 100 springing heifers, 50 fresh 1st and 2nd calf heifers. ANDERSON HOLSTEIN FARM, phone 6-5730, Seneca, Missouri. 6-2

WISCONSIN HOLSTEINS: Top springing cows and heifers, also open heifers all ages. Have drivers available to buy direct from farmers. Let us know your needs. Call or write MIKE J. BRADLEY, Denmark, Wisconsin, phone UNion 3-5808. 5-6

REGISTERED HOLSTEIN HEIFERS and calves. W. STRAUSS, Watertown, Wisconsin.

BEEF CATTLE

WHY BE A SLAVE to a milk cow! Charolaise, world's largest, fastest growing cattle. Bulls, bred and open heifers. NAPIER BROS., Route 1, Marengo, Illinois. Phone Garden Prairie, Illinois LY 7-1356.

Sales Announcements

April 11, 1961 Guernseys—Normila Farm Dispersal, 2 miles East of Galesville, Wisconsin. 1:00 p.m. 60 head. Norman Olnes, owner. For catalog contact Lester Senty, Clerk, Northern Investment Company, Independence, Wisconsin.

April 13, 1961 Jerseys—Missouri State Sale, Sedalia, Missouri. At the Missouri State fairgrounds. 12 noon. 55 head. For catalog write Ivan N. Gates, sale manager, West Liberty, Iowa.

April 24, 1961 Holsteins — Wisconsin Breeders' Sale, Watertown, Wisconsin, at the Darcey sales arena located 7 miles North of Watertown on Highway 26, 12:30 p.m. 75 head. Francis Darcey and Sons, Sale Managers, Watertown, Wis.

May 22, 1961 Ayrshires—Canadian National Ayrshire Sale. 1:00 p.m. The arena, Huntingdon, Quebec, Canada.

Golden Years Opportunity

Men Over Fifty

WANTED MEN 45 to 60 who can meet their fellow man and talk convincingly on basis of their years of experience. Knowledge of dairy farming helpful. Car needed. Your high income days are not over . . . Experience is an asset in this job! Good territory now open. Write today giving past work experience and references to

HOARD'S DAIRYMAN

Circulation Department

FORT ATKINSON, WISCONSIN

DISPLAY

LIVESTOCK DISPLAY ADVERTISING

COPY MUST REACH US ONE MONTH BEFORE ISSUE DATE

For advertising of livestock only: Including consignment, dispersal or reduction sales, breeders herds and individual animals. Also dealers, county, state and national breed associations, artificial breeding associations, semen sale ads, fairs, expositions etc.

WRITE FOR RATES

Special rates for continuous and large space advertisers.

NOTICE TO BUYERS

WHEN BUYING DAIRY CALVES OR DAIRY CATTLE, inspect and select cattle personally. If impossible, have them checked by someone in whom you have confidence. Complete understanding in writing between buyer and seller is very important. Should you buy on approval, it is advisable to have animals inspected by a veterinarian on arrival before accepting. Report serious health problems to your state veterinarian.

— Hoard's Dairyman.

DAIRY CATTLE SALE — Bancroft Sales Barn, Bancroft, Wis. 80 mi. N. of Madison on U.S. 51. Friday, April 28. 1:00 p.m. Our special heifer and cow sale, springer cows, bred heifers, also open heifers, all breeds. Col. Art Doede, Auctioneer, Rosholt, Wis., phone 2451. **Winston Judd, Manager, Bancroft, phone 130R.**

WISCONSIN DAIRY CATTLE

Midwestern Dairymen ! ! !

Fine foundation **SPRINGING** heifers, yearlings, cattle of all ages. These are sold on commission basis to you. We have buyers throughout the northern dairy states and can supply the finest for the best possible price. One of the midwest's largest dealers serving dairymen for the past 8 years. We will deliver C.O.D. to your farm by our experienced drivers. We are moving 300-500 head per week.

WE FINANCE - UP TO 24 MONTHS TO PAY

DENNIS R. GROSSE

PHONE 1419 YORK, NEBRASKA BOX 48

SPECIALIZING IN

QUALITY QUANTITY & SERVICE

Badger Breeders Cattle Sales Division selling registered and grade cattle of all ages

CONTACT

BADGER BREEDERS CATTLE SALES DIVISION

Phone LAkeview 6-2141 Shawano, Wis.

CAREFULLY SELECTED SIRES

For the Sound Dairyman

PIPER BROS. FARMS INC.

ARTIFICIAL BREEDING SERVICE

WATERTOWN, WISCONSIN

CARNATION BUTTERBOY COUNT

His sire—Carn. Madcap Butterboy

His dam—A sister of Frasea Ideal Pilot with 970 F

"Proven" and Highly Classified Sires. Service now available in many parts of the Nation as well as in Wisconsin. Semen available anywhere in U.S. or foreign countries on order.

BREEDS

HOLSTEIN	*JERSEY*
GUERNSEY	*ANGUS*
BROWN SWISS	*HEREFORD*

WRITE FOR COMPLETE PEDIGREES

Is your subscription running out? Renew now! Five full years only $3.

BROWN SWISS

WHAT MORE DO YOU WANT

BROWN SWISS CATTLE

- ARE EXCELLENT PRODUCERS:
- HAVE A LONG-MILKING LIFETIME:
- PRODUCE HIGH QUALITY PRODUCT:
- ARE HARDY AND RUGGED:
- ARE GOOD FEEDERS:
- HAVE HIGH SALVAGE VALUE:
- ARE QUIET AND ATTRACTIVE:
- HAVE A LARGE DEMAND:

Free Literature on Request

BROWN SWISS BREEDERS' ASSOCIATION

BELOIT WISCONSIN

JERSEYS

I have choice high grade bred Jersey and Guernsey heifers, also fresh and springer cows. All T.B. and Bang's tested. Come and make your selection, or will fill your order or help you buy. Phone University 5-4113. **CLAUDE THORNTON, Route 2, Box 256, Springfield, Mo.**

GOLDEN SUNSET JERSEYS—Born Nov. 11, 1960. A dandy herd sire prospect. His granddads are "Welcome H. L. Torono" and "Biltmore Standard Wonder." You would like him. Send for pedigree and low price.

THE ENNIS JERSEY HERDS, Festus, Missouri.

THREE GENERATIONS OF TON OF GOLD EXCELLENTS

17 Jersey Cows in Brigham Herd Today Have Lifetime Totals Over 5400 Lbs. Fat

Total Milk Since First Calving — 2,045,335 Lbs.
(This is 135 times their own weight)

Total Fat Since First Calving — 115,101 Lbs.

The 17 Have A Total of 59,896 Days In Milk To Date.
They Average 1020 Lbs. Milk — 54.7 Lbs. Fat Per Month
For A Total Period Of Over 2000 Months!

Roll Call Of Top 17 In Brigham Herd Today

Name	Classification	Days in Milk	Lbs. Milk	Lbs. Fat
S. O. Adelaide	GP	4507	154,539	8,875
S. O. Berdine	VG	4265	143,857	8,408
V. C. Daria	EX	3660	136,947	7,971
S. O. Cecilia	GP	3671	128,822	7,562
S. O. Billie	VG	4258	127,916	7,120
D. M. A. Danita	VG	3602	136,163	7,068
V. D. Delilah	VG	3703	138,803	6,913
S. O. Candida	G	3851	113,100	6,812
S. O. Editha	GP	3173	132,781	6,717
S. O. A. Eleanora	EX	3177	108,239	6,488
L. R. U. Frida	EX	2899	103,080	6,355
S. O. Eglantine	VG	3467	105,301	6,166
S. O. Felita	VG	2951	119,857	6,001
S. O. Eileen	EX	3413	100,475	5,834
L. R. U. Edra	VG	3125	89,938	5,726
L. R. U. Elna	VG	3120	106,018	5,622
S. O. Faustina	VG	3054	99,499	5,463

These Great Brood Cows And Their Daughters Are Being Mated To Our 600 Lbs. Fat Transmitting Sires

YOU SHOULD BE DEVELOPING A SON

20 Years Over 500 Lbs. Fat

BRIGHAM FARM JERSEYS

ST. ALBANS, VERMONT

Classification Average 85.76%

NOTICE TO BUYERS

WHEN BUYING DAIRY CALVES OR DAIRY CATTLE, inspect and select cattle personally. If impossible, have them checked by someone in whom you have confidence. Complete understanding in writing between buyer and seller is very important. Should you buy on approval, it is advisable to have animals inspected by a veterinarian on arrival before acceptance. Report serious health problems to your state veterinarian.

— Hoard's Dairyman.

GUERNSEYS

GUERNSEY SALES SERVICE

Six fieldmen of the largest Guernsey Association in the nation are fully acquainted with cattle for sale in Pa., Del. and Eastern States. We have private listings at all times, also regular monthly sales. If you need one, or a car load, write for prices — get quick service. If you want to sell, contact us — low selling charge — prompt payment.

Often requests for cattle come from all over the United States. It may be from your next door neighbor! Send us your listing so we can tell the prospect nearest you.

Pa. Guernsey Breeders' Ass'n.
P. O. BOX 302 CAMP HILL, PA.

PUREBRED GUERNSEYS:

Young cows with good DHIR records due with 2nd and 3rd calves. Heifers all ages up to freshening. High production inheritance. From proven cow families and by proven sires.

TARBELL GUERNSEY FARM
SMITHVILLE FLATS, N.Y.

HOLSTEINS GUERNSEYS

Large selection of high grade cows and heifers of all ages. Calfhood vaccinated — lab. tested. We feed well balanced roughage for top production and size. Buy direct and save. Experienced insured transportation.

LAKESIDE DAIRY FARMS
Quality Cattle Since 1929
Silver Lake, Indiana Telephone 3801-3904

PROMISING GUERNSEY BULL CALVES

Several youngsters sired by Dairyman F's Jado, Elmwood Dairyman Triumph or one of our junior sires. All out of good producing dams with good type. Here is your chance to get a young sire possessing bloodlines bred proven for profitable production. Priced to sell quickly.

Write for descriptions and prices, or come and pick one out.

HOARD'S DAIRYMAN FARM
FORT ATKINSON, WIS.

GRANDVU GUERNSEYS — Choice young bulls and heifers, all ages. Blue Ribbon Type, size, production breeding. From 2 great Proved high index sires, Flying Horse Masters Royal, Greenfield Music Maker. Foundation Club Calves. The right kind at the right price. Write or come to Grandvu Farms, Wrightstown, Wis.

You will find MORE in Hoard's Dairyman.

JEFFERSON COUNTY GUERNSEY BREEDERS ASSOCIATION—Guernseys—registered and grade females, all ages. Also bulls. Free service to buyers. Write or phone: **William Erdman, Route 1, Fort Atkinson, Wisconsin, JOrdan 3-5731.**

SERVICE AGE GUERNSEY BULLS

Sired by Gold Star Sires, Fritalyn Jeanette's Flash, and Blakeford Transfer. Dams backed by 15 years of continuous DHIA testing, 3 years of HIR and DHIR. Records up to 13560-896-5DHIR-305-2x, and many other good ones. Foundation cow has over 570022 fat, lifetime, still on test, classified VG 5 times. All records made under ordinary farm conditions, with machine milking and no hand stripping. Herd classified 6 times. Write for price and pedigree.

THREE CLIFFS FARM
DON FORNER CHASKA, MINN.

A Jersey Herd Did It!

BRIGHAM JERSEY FARM

The only registered herd of any dairy breed to exceed a 500-lb. fat herd average on official test for 20 consecutive years with over 100 milking cows. The entire dairy world salutes Brigham Farm, St. Albans, Vermont, for this tremendous accomplishment.

CONSIDER THESE FACTS:

1. 20-Year Herd Production Average: 10,254 lbs. milk, 548 lbs. fat.
2. Bred and developed 72 - 100,000-lb. milk producers.
3. Bred and developed 214 - Ton of Gold Cows (producing 2,000 lbs. or more of fat in 4 consecutive years).
4. Bred and developed 94 - Tested Dams.
5. Present classification average - 85.76 per cent on 135 head.

For additional information about Registered Jerseys and All-Jersey Milk write to:

THE AMERICAN JERSEY CATTLE CLUB
1521 East Broad Street
Columbus 5, Ohio

HD-4-61

REGISTERED GUERNSEYS

Best Choice for Highest Net Income

It's a fact. You will make *Highest Net Income* when you switch to REGISTERED GUERNSEYS.

Guernseys are the *earliest maturing* dairy breed and have a natural inheritance of long life. This means they bring you profits sooner and return a higher lifetime income.

Guernseys are *easily handled* and adapt readily to all types of modern dairying methods. This means most efficient use of labor, feed, and space in the barn and at the feed rack.

Guernseys produce the world's *finest milk*. Distributors demand it for fluid use because . . . it has an appetizing golden color, delicious flavor — and it has the *highest* solids-not-fat, also the highest protein, Vitamin A and mineral content of any breed, thus assuring consumer acceptance. Remember, distributors pay producers on the basis of total solids — *not on pounds of milk alone*. Guernsey is the only milk to score 100% in national competition!

Guernseys are *most efficient* . . . They excel in their ability to economically convert roughage and grain into milk. Add this to Guernseys early maturity and high lifetime production of the finest milk and you'll find the breed that gives highest dairy profits!

Start Your REGISTERED GUERNSEY HERD NOW!

Write for Information Today!

THE AMERICAN GUERNSEY CATTLE CLUB
28 Main Street, Peterborough, N. H.

☐ Send FREE "Guernsey Handbook, "Profitable Dairying" plus information on how to start a Guernsey herd and where to buy breeding stock.

☐ Send FREE information about the profitable business of selling nationally-advertised Golden Guernsey Milk.

NAME.....

ADDRESS.....

TOWN.....STATE.....

A BULL OF YOUR OWN

FOR UNIFORMITY IN YOUR HERD. Select a good type young bull sired by one of our fine quality sires—Sanfadair F. Predition or Sanfadair L. Princton, or Fairlawn K. Princeton. They will add quality to your herd and they are priced right. See them at the farm. Highway 296—between Stillwater and White Bear Lake, Minn.

SANITARY FARM DAIRIES, INC.
415 Grove St. St. Paul 1, Minn.

GUERNSEYS

Waukesha County can furnish you with most any kind of Guernseys you desire—grade or pure bred. Lee Burlingham, fieldman, at your service. Waukesha County Guernsey Breeders' Assn., Waukesha, Wisconsin.

AYRSHIRES

NOW YOU CAN BUY
POLLED AYRSHIRE BULL CALVES

That are from high producing families
That are of Carefree Farms & Penshurst Breeding
That give you excellent type calves
That are priced at prices sure to please

WRITE FOR PEDIGREES AND PRICES
CAREFREE FARMS NEW HAVEN, INDIANA

TOP YOUNG SIRE

We have an exceptional young bull calf who is out of a twice VG dau. of McDonald Farms Le Varden "All American in 1955." He is by Curtiss Candy Loyal Curtiss. Write for pedigree and price.

BECKER GUERNSEY FARM
Herman Becker & Son Ballantine, Montana

HOLSTEINS

INTER-COUNTY
DAIRY CATTLE ASSOCIATION
118 Baxter St. Waukesha, Wis. P.O. 177
PHONE LIBERTY 7-3644

Registered and High Grade Holsteins, all ages. Experienced fieldman service or will fill orders as directed. We are in a position to handle domestic and foreign shipments of any size. Financing can be arranged. Services of Arthur F. Bennett, James L. Gordon and Reynold Bennett.

THE NEW AYRSHIRE LOOK

GREATER PRODUCTION PROOF
ACTUAL 2X 305 DAYS

Shagbark Rhoda — 20,605 M.
5.0% 1024F. 8 Yrs. Pictured here

Green Valley Raff Incense
21,255 M. 4.3% 916 F. 7 Yrs.

Valhalla Hannah 2nd
20,616 M. 4.4% 916 F. 4 Yrs. 4 mos.

Greater Profits — Economical converters of feed to quality milk — Regularity of calving — Additional income from registered calves — Lower Veterinary costs — Udders strongly attached — Lower replacement costs.

Greater Opportunities — For Net Profits — For a Product that suits the Market — For Sales

Write: AYRSHIRE BREEDERS' ASS'N., 10 Center St., Brandon, Vt.

CURTiSS

Where Records Speak

HENSLEE FARMS V. FAME Named:
Highest Guernsey Sire of Breed for Milk
10 dtrs. 11 recs. av.: 14349-582-305-2x-ME.
Highest Living Sire of Breed for Classification
11 classf'd dtrs. av. 87.0%.

ROBERT STEINER, Algoma, Wis., writes:

"The 12 records completed this past year by our CURTiSS daughters av.: 519 lbs. Fat Actual, helping raise our herd average on 33 cows to 13335-3.85-509. My highest Curtiss daughter finished with 19860-4.2%-830. . . . We have our best crop of heifers and yearlings yet coming up, all sired by Curtiss bulls. . . . May I also congratulate Curtiss on the recent purchases of some really great Holstein bulls. I'm referring to Audacious, Hi Hope, Skokie Design and UNH Master Echo."

Here is the real kind of PROOF that CURTiSS Breeding Service is the herd improvement program for you year after year, each year better than the last.

Start and stay with CURTiSS. Call your local CURTiSS technician NOW. Or write:

CURTiSS BREEDING SERVICE, INC.

FIVE DAIRY • FIVE BEEF BREEDS • ONE DUAL PURPOSE

CURTISS FARM - CARY, ILLINOIS • Otto Schnering, Founder • Phone MErcury 9-2041

NOTICE TO BUYERS

WHEN BUYING DAIRY CALVES OR DAIRY CATTLE, inspect and select cattle personally. If impossible, have them checked by someone in whom you have confidence. Complete understanding in writing between buyer and seller is very important. Should you buy on approval, it is advisable to have animals inspected by a veterinarian on arrival before acceptance. Report serious health problems to your state veterinarian.—Hoard's Dairyman.

REGISTERED HOLSTEIN BULLS

Ready for service. Sired by Wis Reward "The bull with the golden pedigree," and out of our "Good Plus" and "Very Good" cows with good records. Also have a large selection of younger bulls. Our prices are very reasonable as we must keep our bulls sold. See our herd of 900 registered Holsteins and ultra-modern milking unit. Visitors are always welcome.

GREEN MEADOW FARMS Elsie, Michigan

ART CAMENZIND'S DAIRY CATTLE

200 to 300 head of quality springing Holstein and Guernsey heifers and young cows, year around. Picked for production, type and clean well formed udders. Herds bought and sold. Satisfied cutomers, lifetime experience. All cattle are well fed and cared for. Mostly calfhood vaccinated and all are tested. Springing heifers shipped on approval, or cattle may be seen anytime. Two miles northwest of

Irvington, Nebraska

ON HIGHWAY 133

PHONE OMAHA, 393-2120

GOLD MEDAL BRED HERD SIRE

This month we offer a very typy young bull born November 1, 1959. He is well grown and ready for light service. He is 60% black. His sire is EX and GM with 87 daus, av. 587 F. The dam has 563 F at 3 years. For more information call or write CARL W. MEDSKER, phone 2-3087 or 2-3319, Grayville, Indiana.

MEDSKER FARMS SULLIVAN, IND.

CARNATION LOLA TILDA WALKER VG

2-3	3x	365d	16,438	649	3.9%
3-5	3x	305d	14,695	565	3.8%
4-6	3x	321d	17,896	643	3.6%
5-6	3x	334d	20,317	747	3.7%
6-7	3x	365d	25,847	1026	4.0%
8-1	2x	323d	14,611	563	3.9%
Total to date			109,804	4184	3.8%

HER ROYAL MASTER SON FOR SALE

We have a straight, stylish Royal Master son from Carnation Lola Tilda Walker for sale. He was born October 12, 1960 and is about 85% black. His Ear Tag number is B-638.

Carnation Lola Tilda Walker was first prize Senior Yearling at Wisconsin State Fair in 1953. She was nominated for All-American Senior Yearling. She has 109,804 M, 4,184 F and is going strong again on her seventh lactation.

She is a daughter of EX GM Hallrose Progressor out of a Reserve All-American daughter of Carnation Black Magic with 810 F 4.1%. The next dam is a 917 lb. 4.0% daughter of Carnation Governor Imperial from a 1,107 lb. daughter of Governor of Carnation.

Here is a most promising herd sire from one of the top cow families in the Carnation herd.

Write, wire or phone for pedigree and price.

Carnation Milk Farms

Address: CARNATION MILK FARMS Dept. # 200 Carnation, Washington

TRI-COUNTY HOLSTEIN ASSN., Watertown, Wis., Box 143. We fill orders efficiently for both Registered and Grade Holsteins. We furnish field service for selecting your animals. Fifty years in business—we aim to satisfy. Can furnish references. **Francis Darcey and Sons** — N. on Hy. 26 — 7 miles.

Wisconsin Dairy Cattle

Serving the Dairy Industry for over 50 years

GILSON BROS.

ED AND ANSEL GILSON

GREENLEAF, WISCONSIN

Registered & Grade Springing Cows, Springing Heifers, Open Heifers. Fieldman Service, Order Buying a Specialty. Dairy Sale of 100 Holstein cows and heifers the last Thursday of each month starting April 27 at 2:00 p.m.

Write or phone Wrightstown 532-5622 for prices.

FOR A BETTER LIVING TOMORROW—

BUY WISCONSIN DAIRY CATTLE TODAY

Over 1900 herds of reg. and top grade Holsteins and Brown Swiss. Fieldman service. Financing available in cooperation with Dairy Credit Corp., DeKalb, Ill.

Fullpail Buying Service, Germantown, Wis. Phone Menomonee Falls 57M13

FOX RIVER VALLEY HOLSTEIN BREEDERS ASSOCIATION

Serving nine counties, in the heart of Wisconsin's dairy land. Foundation registered and top quality grades available, bred for type and production. Over 300 registered breeders in area. All popular Holstein bloodlines. 5 large artificial breeding rings serving the area. Come and make your own selections, or will buy on order at your direction. Fieldman service. Write, wire or phone G. J. STANCHFIELD, Phone WA 25264, 30 Champion Avenue, Fond du Lac, Wisconsin.

WISCONSIN DAIRY CATTLE

Holsteins Guernseys-Brown Swiss

COWS, HEIFERS

ALL AGES

Registered and nonregistered

Come here and make you own selections. Or we will fill your order on direction from you and deliver on approval. Shipments accompanied by the proper health certificates. Delivered in truck load lots to your farm, in our own trucks by experienced cattlemen.

FINANCING AVAILABLE

JAY SHEAFOR, JR.

ROUTE 1, RICHLAND CENTER, WIS.

Phone MI 7-3209 or MI 7-2515

WISCONSIN STATE INSTITUTION

HOLSTEINS

"With development of bloodlines in our institution herds that have proved so outstanding in some of the best herds in the U.S.A., and in many foreign countries, we continue to offer the best in breeding stock.

"The Excellent and Gold Medal animals speak for themselves and with intensified linebreeding their offspring run true to form.

"A number of choice bulls from which to select a herd sire always available.

"For information and sales lists, write to

FRED M. WHITEMARSH, Farm Supervisor
STATE DEPARTMENT OF PUBLIC WELFARE
State Office Building, Madison, Wisconsin."

COLUMBIA COUNTY HOLSTEIN BREEDERS' ASS'N

Serving five counties. Offering select quality heifers and young cows, grade and registered, bred for type and production. Also choice, serviceable, registered bulls. Mostly Burke and Carnation breeding. Free fieldman service.

For information write: W. K. WRIGHT, Rt. 1, Columbus, Wis. Ph. Fall River 26F21

H. A. MEYER CATTLE CO.

PLYMOUTH, WISCONSIN

Quality springing heifers & cows available at all times. Have available financing—⅓ down—balance in monthly payments.

Have 150-1200 pound heifers to freshen in July and August. Must sell these by May 1st.

Fieldman service or will fill orders.

BUY HOLSTEINS STRAIGHT FROM "THE HEART!"

Best selection from one of the world's largest dairy counties. Over 15,000 cattle are on D.H.I.A. test and more than 40,000 bred artificially from some of the top proven bulls. Fieldman sales and service. For information write: **Frank E. Cairns, Fieldman, City County Bldg., Madison, 9, Wisconsin.**

TEL. ALPINE 6-8513 OR CEDAR 3-5538

DANE COUNTY HOLSTEIN BREEDERS CO-OP ASSOC. MADISON, WIS.

NORTHERN DAIRY CATTLE DIRECT FROM FARMER BREEDERS

T.B. & Bang's accredited county. Fieldmen sales & service, or orders filled. For information write, call, or wire Barron Co. Coop. Dairy Cattle Sales Ass'n, Barron, Wis. Glen L. Krahenbuhl, Mgr. Ph: Lennox 7-3202.

HOLSTEIN DAIRY CATTLE — Registered and Grade cows, heifers of all ages. TB and Bang's tested, calfhood vaccinated. Write or call for free price list. Fieldman service or will fill orders at your direction. **GEORGE PIPER, Watertown, Wis., Phone 2912-W.**

JEFFERSON COUNTY HOLSTEIN BREEDERS' ASSOCIATION

REGISTERED and GRADE HOLSTEINS

available from top DHIA accredited herds, many using artificial breeding. Heifers at all ages, good young cows. Financing Available.

Free fieldman services. Write-wire-phone for prices:

WILL RETSCHLER, Fieldman

Office in Black Hawk Hotel, Fort Atkinson, Wis. Phone JOrdan 3-2329

Res. Phone LYnwood 3-2351 at Sullivan, Wis.

Holstein Cows and Heifers

If you're looking for cows or heifers come to Dodge County where good Holsteins are raised. Buy them first-handed and save expenses. We have 250 head of bred and springing grade and purebred Holstein cows and heifers on hand at all times. Can furnish transportation for any number large or small.

LOUIS NEHLS

Phone FULTON 6-4401 Juneau, Wisconsin

REGISTERED & GRADE HOLSTEINS

All ages, from DHIA tested herds. Many artificially bred.

RICHLAND COUNTY HOLSTEIN ASSN.

Frank Brewer, Fieldman, Route 3, Richland Center, Wis. Phone MI 7-2460

This month we offer Stoffell Spotlight Karl born February 5, 1960. This nice stretchy calf is sired by Wis Spotlight who recently ci. EX, and is out of a 600 F dam from our Flamingo family. For price and pedigree write:

For price and pedigree write:

STOFFELL'S MILK FARM

Route 12 Knoxville, Tennessee

HOLSTEINS

REGISTERED AND GRADES

Select foundation Holstein Cows and Heifers with Production, type, and size from our Foundation Wisconsin Herds, Artificial Breeding, Calfhood Vaccinated, Bangs and T.B. Tested.

FINANCING

Arrangements have been made with the Dairy Credit Co., DeKalb, Illinois to finance acceptable purchases. Only a down payment is needed and the balance on monthly installments. "The cows will pay for themselves as they produce." For more information about financing call or write Dairy Credit Co., 112 East Locust Street, DeKalb, Illinois Phone 6-4811.

Plan to come and select your Wisconsin Holstein or we will buy on order at your direction. Fieldman service write or phone.

PIPER BROS.

Box 382 Phone 2170 Watertown, Wisconsin

WISCONSIN BREEDERS' SALE

MONDAY, APRIL 24TH, WATERTOWN, WIS.

75 head of registered and grade Holsteins. (At the Darcey sales arena located 7 miles North of Watertown on hwy. 26. Sale starts at 12:30 p.m.) 30 heifers due for early base, both registered and grade. 40 close springing or fresh cows and heifers both registered and grade, many with good production records. 5 serviceable bulls from high record cows.

FRANCIS DARCEY and SONS, Sale Managers Watertown, Wis.

TONS

more milk per cow!

NEW Dairy Guidebook tells how...send for it!

Aim for TONS more milk per cow, plus a big-dollar "second cash crop" of Registered Holstein seed stock!

Dairy profits can be up to four times greater with REGISTERED HOLSTEINS than with average cows! "Big Cow ... Big Profit" tells how!

This big new booklet is a harvest of knowledge and cow-sense . . . a practical guide to Big-Dollar Dairying in the Sixties.

Send for it today . . . use it . . . your blueprint for bigger milk checks and more "keep home" pay. The coupon below will bring you a copy FREE!

Registered HOLSTEINS *Breed of the Times*

HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA
Dept. HD, Brattleboro, Vermont

Yes! Do send me a FREE copy of "Big Cow . . . Big Profit"!

NAME .....

ADDRESS .....

.....

VETERINARY COLUMN

E. A. WOELFFER, D.V.M.

Sleeping sickness

When work horses were more common on farms than they are today, sleeping sickness caused great concern. Sleeping sickness is the familiar name for a serious virus disease called encephalomyelitis (inflammation of the nervous tissues in the brain and spinal cord). As work horses gave way to tractors and mechanization, the disease became less important and very little publicity was given to it.

The picture now is changing rapidly. Encephalomyelitis is becoming more widespread and, as in the past, is giving considerable concern to health authorities as well as owners of horses and mules. Horses are on the increase and so is equine encephalomyelitis, which is considered the most serious disease which the horse may transmit to man. Chickens and other birds, however, are of more consequence than horses as reservoirs of infection.

In horses, the more common signs of the disease are listlessness, sleepiness, incoordination, and paralysis. Usually the earliest symptoms are sluggishness and drowsiness. In some horses, the lips drop lower than normal. In others, they appear more contracted and wrinkled. Most animals show muscle spasms on various parts of the body.

As the disease progresses, sick animals may stand dejected, often with the head somewhat lowered. Oftentimes they move reluctantly and with an awkward gait. Some grind their teeth or stretch their necks. Just before death, affected animals may lie on their sides and make bicycle-like movements with their legs.

Prevention . . .

If any of the above symptoms appear, call your veterinarian immediately. Promptness in establishing a diagnosis and treatment is important in saving the animal's life. A diagnosis is also important because sleeping sickness can resemble other diseases. Further, it will help protect other animals and, even more important, provide greater safety for you and your family.

We don't quite know the whole story on how the infection spreads. Veterinary authorities are mostly agreed, however, the virus is transmitted from animal to animal, and from animal to man by mosquitoes.

Reservoirs of the virus include wild birds, ducks, chickens, ticks, and chicken lice. Mosquitoes most likely to carry the infection are those which feed on birds and occasionally on horses and cows.

Vaccination . . .

The principal, in fact the only practical way of coping with sleeping sickness is through annual vaccination of horses, ponies, and mules. Effective mosquito control programs, and spraying horses, mules, and ponies with suitable insecticides aid in control.

To complicate the picture, there are two types of sleeping sickness in this country. They are commonly termed eastern and western types. In outbreaks of the eastern type, death in affected horses has ranged up to 90 per cent. Mortality from the western type has not been as high; usually it ranges from 20 to 25 per cent.

Because the viruses are different in the two types of sleeping sickness, separate vaccines are necessary. When both types are found in the same area, a combination vaccine is used.

Summary . . .

The important facts about sleeping sickness are: It is a serious disease of horses; the virus may be harbored in chickens and birds; it can be transmitted to humans.

If you own a horse, pony, or mule, especially if there are other animals of these species in the neighborhood, you should seriously consider vaccination for the disease; urge your neighbors to do likewise.

Now is a good time for you to discuss the matter with your veterinarian.

ABNORMAL TOE GROWTH

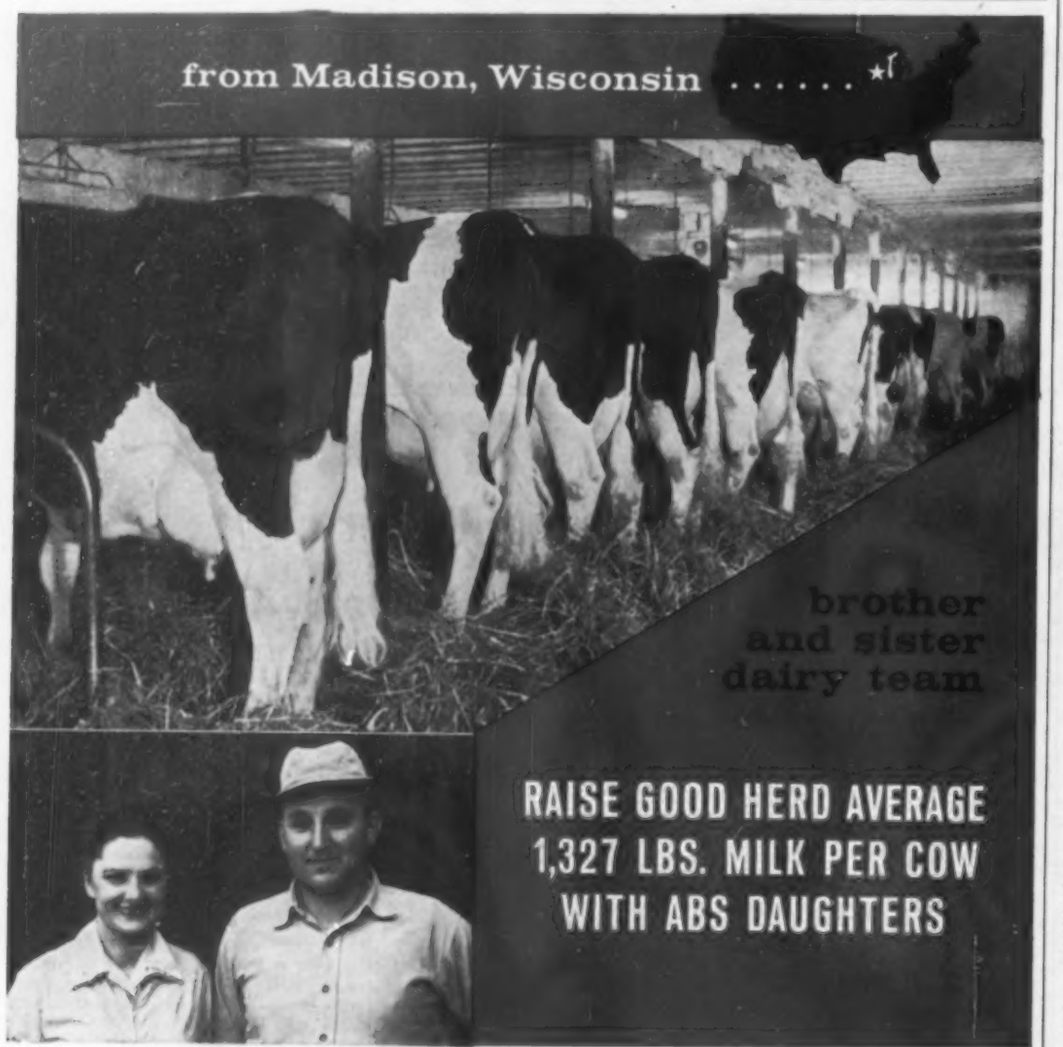
We have a cow that seems to be foundered. Her hoofs keep growing out until she can hardly walk. We have had them trimmed but they soon grow long again.

Is there any cure except to keep trimming her feet?

Odon, Ind. E.M.

Without seeing your cow it is difficult to make a diagnosis and give intelligent suggestions. However, it would appear that the structure of your cow's leg and foot is such that the weight of the body is not evenly distributed on the floor of the foot. Most of the weight is on the heel and, as a consequence, the toes continue to grow abnormally in shape and this adds to the seriousness of the condition.

Trimming the feet every two to three months is the best thing to do.



Al and Betty Keller, a brother and sister dairy team near Madison, Wisconsin, began using American Breeders Service Daughters in their herd about six years ago. Their DHIA herd average was a very respectable 13,363 lbs. of milk and 461 lbs. of butterfat. Now their herd average is up to 14,690 lbs. of milk and 542 lbs. of butterfat . . . an increase of 1,327 lbs. of milk and 81 lbs. of butterfat.

They say, "ABS has provided the inheritance. Now it's up to us to get it out through feeding and management. We need the increased production per cow to stay in business." The Keller herd was first among some 250 dairy herds in Dane County this past testing year. They are milking about 67 head of Holsteins, about one-third of them registered.

You can lift the production of your herd, like the Kellers, through the ABS Proved Sire breeding program. You get the service of an outstanding proved sire *every time*. Your cows stand the best chance of settling with ABS Frozen Semen, national average 72%. And you get the know-how of an organization that's bred more than 10 million cows since 1941.

Call your local, authorized ABS Distributor for service or write:

ABS ® EVERY SIRE PROVED GREAT

Give Your Herd a Proved Sire Future

AMERICAN BREEDERS SERVICE

325 North Wells Street • Chicago 10, Illinois

MEYER Conditioned Hay First in International Competition . . . and Penn. Farm Show three years in a Row!

Leaves Stay on Stems when SLOW ROLLED

NEW EXCLUSIVE MEYER PICK-UP

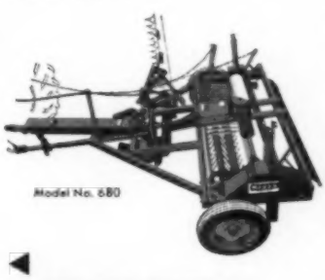
Exclusive large-diameter rotary pick-up floats freely over rocks and terraces . . . lifts and feeds heavy or thin hay . . . on smooth or uneven, rocky ground.

NEW EXCLUSIVE SLOW-MOVING ROLLS

Exclusive non-clogging steel rolls crack entire stems uniformly . . . revolve slowly enough to keep leaves on stems. (Slow rolling slows only the rate the hay is fed through the rolls . . . not your ground speed.) Both conditioning rolls are roller-chain driven.

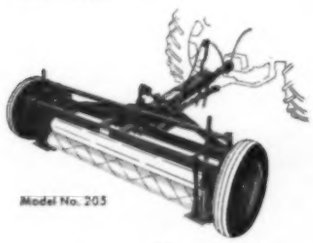
CONDITION WHILE YOU CUT ▶

Meyer is 1st choice because you can use your own trailer-type or side-mounted mower — or you can get the model with built-in mower — an exclusive Meyer patented feature. Windrowing attachment is available.



Model No. 680

◀



Model No. 205

FOR IDEAL FIELD CONDITIONS

MODEL 205 is built without separate pick-up for use on smooth fields without rocks or terraces. Exclusive non-crimping rubber pick-up roll is combined with smooth steel processing roll.

Leaves left in your field are dollars out of your pocket! *MEYER saves the leaves.* The secret: SLOW ROLLING.

MEYER Conditioning Rolls revolve slower . . . much slower . . . because they are fed by an exclusive, separate pick-up — and do NOT rely on high speed in order to pick up the hay. When high speed rolls are used, hay is grabbed up and forced through . . . leaves are torn off . . . dry too quickly . . . shatter or crumble . . . fewer get into the bale . . . or your livestock.

With the MEYER, the hay is lifted, loosened, and fluffed . . . *made ready* for its trip through the rolls. The slower-moving rolls gently and thoroughly crack the stems their entire length without crimping — gently press the leaves. *Protein packed leaves stay on.* The leaves a MEYER saves put more dollars into your pocket, yet MEYER is priced lower.

MEYER MANUFACTURING CO.

Write For New Literature, Prices, and Name of MEYER Dealer

MEYER — maker of famous MEYER elevators — is the original and oldest manufacturer of hay conditioners — with over five years more experience than all other makes.

MEYER MFG. CO., BOX 9263, MORTON, ILL. Model No. 675 ☐ 680 ☐ 205 ☐

Send FREE MEYER Hay Conditioner information, as checked ➘

Name_____ ( ) Student

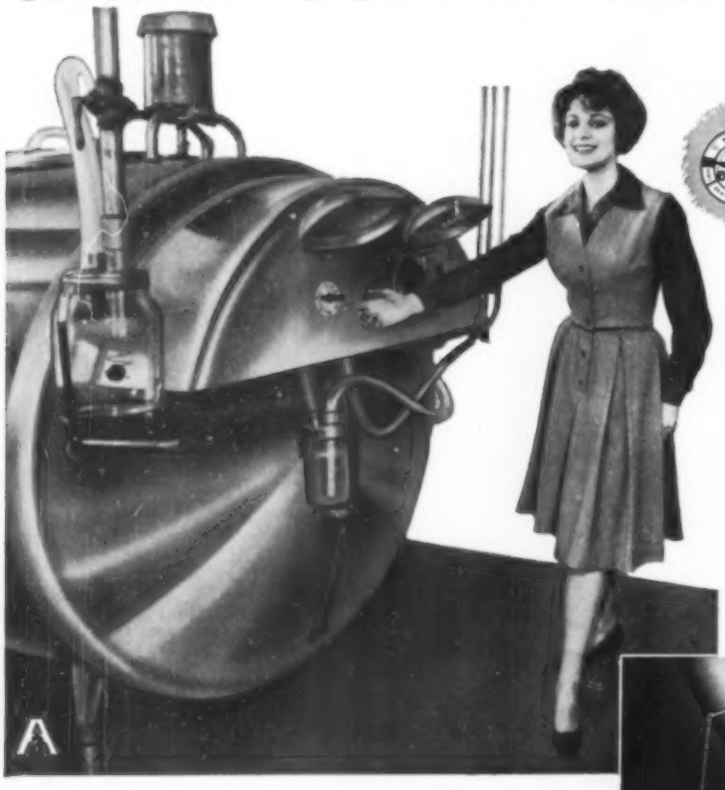
St. or R.F.D._____

Town_____ State_____

I am also interested in MEYER ELEVATORS: ☐ BELT BUCKET ☐ BUCKET ☐ PORTABLE ☐ AUGER GRAIN ☐ DRYERS

Now! Zero® AUTOMATION

Gives You BUILT-IN "PUSH-BUTTON" CLEAN-UP!



JUST TURN A SWITCH ...and this New Zero Bulk Milk Tank Cleans Itself!

EVERYTHING IS BUILT-IN

Here's news you've long awaited . . . the dairyman's dream come true! ZERO . . . pioneer of the major developments in farm bulk milk coolers . . . now presents the first bulk milk tank that's *completely automatic*. This new, ultra-modern ZERO T-20 *COMPLETELY-AUTOMATIC VACUUM* BULK MILK COOLER *washes, rinses* and *sanitizes itself . . . at the simple turn of a switch*. And once you turn the switch . . . its entire cleansing operation . . . from start to finish . . . is as *"push-button" automatic* as the home automatic laundry washer. This new ZERO is the greatest time-saving, labor-saving bulk milk tank ever made. It greatly reduces milk-handling costs . . . assures higher-quality milk . . . and bigger milk profit!

YOU'LL BE PLEASANTLY SURPRISED WHEN YOU COMPARE ZERO'S LOW PRICES WITH PRICES OF OLD-FASHIONED BULK MILK TANKS!

New, *water-proof* URETHANE PLASTIC FOAM INSULATION increases ZERO's cooling efficiency, lengthens its life and makes it the strongest farm bulk tank possible to produce.

ONLY Zero's ROUND-DESIGN, VACUUM AND PATENTED SPATTER-SPRAY WASHER MAKE THIS POSSIBLE . . . OPERATION IS SIMPLE!

The photo above shows how easy it is to operate this new ZERO's *completely-automatic* cleansing system. You simply set the *built-in*, automatic Timer-Clock . . . and *turn a single switch*. That's all!

The Timer-Clock automatically starts the vacuum pump. Vacuum draws the Drain Ball, shown in small photo above, tightly against the drain opening, sealing it shut . . . and also sealing the lids down tight. The detergent is flushed into the tank as the water passes through the *built-in* Detergent Jar before entering the tank.

THIS IS A COMPLETE CLEANSING SYSTEM . . . *with everything, including all Controls, built-in.* This ZERO has no conglomeration of makeshift gadgets to connect, insert in tank, remove, disconnect, wash and store away each clean-up.

CLEANS BETTER! Photo at upper right shows this ZERO's *exclusive, patented, built-in Spatter-Spray Automatic Washer in action.* Twin impellers hurl a double crossfire of water with *"tornado"* force . . . at and below the waterline . . . against this ZERO's round, stainless steel sides, ends and vacuum-sealed lids. Round-shaped . . . there are no hard-to-clean crevices or corners. Official records show that bacteria averages are greatly reduced by ZERO cleaning.

PATENTED "SWOOPED-DOWN" OPENINGS make all milk contact surfaces of this ZERO easily visible and accessible. Brushing is kept to a minimum.

ZERO NOW COSTS LESS! This is ZERO's new, compact BIG-SHORTY model . . . the *big* tank that fits into a *small* milk house. Even with this built-in, labor-saving equipment . . . savings due to compact design and volume production enable us to offer this new ZERO at reduced cost.

SEE YOUR ZERO DEALER! Mail Coupon today for full information, including specifications and sizes . . . location of your nearest ZERO installation . . . and name of your nearest ZERO Dealer!

ZERO CORPORATION
621-P Duncan Ave., Washington, Mo.
A BASIC MANUFACTURER

ALSO GOOD USED EQUIPMENT
. . . which has been traded in, now available at your ZERO Dealer's. Mail Coupon for details. No obligation.

World's Largest Agricultural Research Farm . . . Owned by RALSTON PURINA COMPANY . . . Installs Most Modern Dairy Equipment!

If you visit this famous experimental farm, near Gray Summit, Missouri . . . you'll see the most up-to-date dairy farm equipment; including the ultra-modern, *completely-automatic*, 1200-gallon ZERO Bulk Milk Tank shown at right.

FREE! NEW 14-PAGE ILLUSTRATED BOOK

— describes in detail everything you should know before you invest in any milk-handling equipment. Explains how modern ZERO AUTOMATION saves time, labor and increases milk profits. Gives full information about the ZERO T-20 COMPLETELY-AUTOMATIC VACUUM BULK MILK COOLER — including dimensions of all different capacity ZERO Tanks. Mail Coupon for FREE Book today!

MAIL COUPON FOR FREE BOOK AND FULL INFORMATION!

ZERO CORPORATION 621-P Duncan Ave., Washington, Mo.

Please send me FREE Book described above — location of nearest ZERO installation — and name of my nearest ZERO Dealer.

☐ I am interested in good used equipment

NAME .....

SIZE OF MY MILK HOUSE .....

ADDRESS OR RFD .....

TOWN ..... STATE .....

Zero®

T-20 VACUUM
—Nature's Own Way

COMPLETELY-AUTOMATIC
BULK MILK COOLER
—with BUILT-IN SPATTER-SPRAY
AUTOMATIC WASHER

IF IT ISN'T A Zero . . . IT ISN'T COMPLETELY AUTOMATIC!